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edited by

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A DEDICATION

TO THE MEMORY OF

GRENVILLE GOODWIN

1907–1940

by EDWARD H. SPICER
The University of Arizona

To Grenville Goodwin we owe most of what understanding we have of the way of life of the Western Apaches. Few have tried seriously to learn what that way of life was, and even fewer have written effectively about it. The abundant literature on the Western Apaches, inspired in great part by the spectacular forays of Geronimo and his predecessors, is largely a literature of the white men who fought the Indians and participated in the final relentless roundups. It is not a literature from which emerges a view of the values by which Apaches lived. But for the work of Goodwin, we would have lost almost all opportunity to participate in the Apache world.

There was Cremony, of course, and there was Crook's chronicler, Captain John G. Bourke, both of whom were writers of vivid prose and both sympathetic to Apaches. But skill and good intention were not enough. To learn the way of life of others and to present one's understanding successfully requires more than literary art. It requires first a kind of selflessness, a willingness to suspend one's own existence temporarily while coming to appreciate another view of the universe. Cremony's capacity for this was extremely limited, and he was in a good deal of a hurry anyway when he wrote his memoirs. Bourke, a gifted writer who told good stories, became deeply interested in observing and in seeking to understand the premises of Apache life; but his own life was too full of other things by the time he started. Thus the period of transition from free to reservation life remains inadequately interpreted. In contrast with the Plains Indian culture, the Apaches had no interpreters who looked from the inside outward – no squaw men,

articulate war chiefs, or others to give us an interpretive literature of that other Indian-way. It is perfectly true, as modern Apaches insist, that there is no written Apache history, only white men's history; Geronimo is the only Apache autobiographer, and his ghosted story tells little of Apache life. Goodwin almost alone learned enough to put us on the right track.

How did Goodwin get beyond the externals which have become familiar in works like those of Lockwood, Wellman, and others who have portrayed Apache life from the view point of the white military campaigner? It was not through an elaborate training in any school of anthropology. Goodwin studied little formal anthropology before beginning his Apache work. He was not armed with course notes on field techniques or on theories of primitive society. He later made an effort to gain such special knowledge, because he learned as he went along that this could be a source of deeper understanding of what he had found out by his own methods. He began with little more than that basic essential – a humble desire to know what it was like to be born and raised an Apache. The techniques for learning were instinctive in his make-up.

Goodwin began simply by going to live for the greater part of three years with Apaches at Bylas, Arizona, on the San Carlos Reservation. He knew that he could not push himself at people, and so he got a job – assistant to the trader in the Bylas store – which gave him a place in the community. In this capacity he came to know many families, most of whom were of White Mountain Band origin, in the eastern part of the San Carlos Reservation. He came to know them; they came to know him. Quiet and reserved, he made acquaintances rather slowly. He gathered information in a way which suited the people with whom he worked. He plied no one with a stream of questions. He visited and chatted. He sought older people who wanted to talk about old times. He was a master listener. Today Apaches on the San Carlos Reservation often mention Grenville Goodwin. They say: "He used to come and sit around on the ground in the evenings. The old people liked to talk with him." On this basis his friendships developed and he was invited to every kind of gathering – whether medicine sing, puberty ceremony for girls, or tulapai party. He went, and his knowledge deepened. Anthropologists call this "participant observation" – for Goodwin it was "getting to know people."

Goodwin was born on Long Island, New York, in 1907. For his college preparation he was sent to the Mesa Ranch School in Arizona. From that time, he was a dedicated Southwesterner. While at the Mesa Ranch School he became acquainted with Dean Byron Cummings, who encouraged him to come to the University of Arizona to study anthropology. Dean Cummings was an important figure in Southwestern archaeology, but it was the Dean's humanism and attitude toward Indians which attracted Goodwin. At first he followed the lead of Dean Cummings and made some trips among the Navahos, but from the start his interest in the Apaches had been deep. At this time, in 1931, Dean Cummings was beginning his first excavations on the Fort Apache Reservation at Kinishba, and he gave Goodwin steady encouragement. Goodwin was not interested in earning an academic degree and, once he had decided what he wanted to do, he

did not continue in classes. He went to live at Bylas, and from then on throughout his short life his whole attention was devoted to the Apaches.

For the next ten years Goodwin extended his acquaintance throughout the Fort Apache and San Carlos reservations. Besides Bylas, he studied the communities of Fort Apache, Canyon Day, and Cibecue. His specialty in ethnology became the White Mountain, rather than the San Carlos, people. Nevertheless he traveled with Apache companions to all parts of the Western Apache territory, including the Tonto area; and at the time of his death he had visited many places in Sonora and Chihuahua, as well as in the United States, which figured in important ways in Western Apache history. He never claimed more than twenty-two months in the field, but this was undoubtedly an understatement which referred to periods of continuous residence only.

Goodwin never bothered to earn a degree of any kind, although he carried out some graduate work at the University of Chicago just before he died. In his field work he had become acquainted with professional anthropologists, particularly those from the University of Chicago who were studying the language and ethnology of the Eastern Apaches. In 1931 he met Morris Edward Opler, student of the Chiricahuas, and gained much inspiration and practical advice from him. At the same time he gained acquaintance with Dr. Harry Hoijer of the University of Chicago, and learned from him methods of transcription of unwritten languages. Without Goodwin's knowledge of the Western Apache language and his ability to transcribe phonetically the native names for what he was studying, much of the value of his work would have been impaired. These and other friendships, such as with Leslie Spier and with John Provinse in Tucson, brought him increasingly into contact with the whole field of anthropology and greatly enriched his work.

The first publication by Goodwin came in 1935 with a paper in the *American Anthropologist,* and through the late 1930s he published occasionally in various journals. He was determined to prepare himself, by further study, to analyze and publish his extensive store of field notes. In 1937 he was asked by Scudder McKeel, social anthropologist in John Collier's Bureau of Indian Affairs, to advise in connection with laying foundations for a tribal government organization among the San Carlos Apaches. Goodwin's report, still unpublished but available in the files of the Bureau of Indian Affairs and the Department of Anthropology of the University of Arizona, was a pioneer effort in applied anthropology.

In 1939 Goodwin went to the University of Chicago for graduate study in anthropology, and to complete a monograph on which he had been working under the guidance of Professor Fred Eggan. In the same year he was appointed Research Associate in the Arizona State Museum. Goodwin's work with Eggan and Hoijer at the University of Chicago resulted in his major contribution, the widely-known monograph entitled *The Social Organization of the Western Apache.* One of the most detailed and best-documented studies of Indian social organization, this volume has made its author a major figure in North American ethnology.

The book was published posthumously. As he completed the last pages, Goodwin contracted a brain tumor and died suddenly in June, 1940. He was

buried in Tucson, where he had decided to take up permanent residence – with his wife and a child named for one of his Apache friends – as his headquarters for a projected lifetime of work to be devoted to interpretation of the Western Apaches. Goodwin had planned a series of monographs. He had hoped to follow his study of social organization with one on religion, and had taken the notes with him to Chicago. This monograph was never written, but there is hope that a volume based on these field notes may yet be prepared.

Anthropology and the Apaches lost much by Grenville Goodwin's early death. His promising work was cut short, but even so he succeeded in laying the foundations for a sound ethnology of a people whom he had learned during ten years to understand and to respect.

A CHRONOLOGICAL LIST OF THE WRITINGS OF GRENVILLE GOODWIN

"The Social Divisions and Economic Life of the Western Apache," *American Anthropologist*, v. 37 (1935), pp. 55–64.

"Experiences of an Indian Scout," *Arizona Historical Review*, v. 7 (1936), pp. 31–68 .

"The Characteristics and Functions of Clan in a Southern Athapascan Culture," *American Anthropologist*, v. 39 (1937), pp. 394–407.

"White Mountain Apache Religion," *American Anthropologist*, v. 40 (1938), pp. 27–37.

"The Southern Athapascans," *The Kiva*, v. 4 (November 1938).

Myths and Tales of the White Mountain Apache. Memoirs of the American Folklore Society, No. 33 (1939).

The Social Organization of the Western Apache. Chicago: University of Chicago Press, 1942.

"A Comparison of Navaho and White Mountain Apache Ceremonial Forms and Categories," *Southwestern Journal of Anthropology*, v. 1 (1945), pp. 498–506.

"A Native Religious Movement among the White Mountain and Cibecue Apache," *Southwestern Journal of Anthropology*, v. 10 (1954), pp. 385–404. (With Charles R. Kaut).

THE DYRENFORTH RAINMAKING EXPERIMENTS:

A GOVERNMENT VENTURE IN "PLUVICULTURE"

by

CLARK C. SPENCE

The author, now an Associate Professor of History at the University of Illinois, specializes in Western history and American agricultural history. His major publication is *British Investments and the American Mining Frontier, 1860–1901* (1958).

TRIBAL CEREMONIES to ward off destructive thunderstorms or to invoke rain in periods of drought have long been part of the culture of many primitive societies. The Iroquois sought to induce rain by burning tobacco; the Zuñis used medicine sticks; among the Muskingum, jugglers performed elaborate rituals. In early Peru the Incas starved sheep until rain fell and sacrificed alpacas to prevent storms. Ancient Arabs often dressed in mean garb and appealed for rain in public procession, while in some villages of India women walked to the nearest stream at night to pray for rain clad in no garb at all. Other parts of India, even at a comparatively late date, retained the village *gapogari*, whose official duty it was to provide sufficient rainfall, or suffer the consequences.[1] In more modern times and societies men have sought to modify or to control the weather by "scientific" means. "Pluviculture,"

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[1] See William J. Humphreys, *Rain Making and Other Weather Vagaries* (Baltimore, 1926), pp. 5–28; H. F. Blanford, "How Rain is Formed," *Annual Report of the Board of Regents of the Smithsonian Institution . . . 1889* (Washington, 1890), p. 287; Mark W. Harrington, "Weather Making, Ancient and Modern," *Annual Report of the Board of Regents of the Smithsonian Institution . . . 1894* (Washington, 1896), pp. 249–52; *Scientific American*, January 22, 1870, p. 57.

as David Starr Jordan once called the art of trying to produce rain by artificial methods,[2] has intrigued men in all periods, but not until late in the nineteenth century were significant practical experiments made.

The literature of "pluviculture" in the United States reveals a wide variety of scientific and pseudo-scientific proposals suggested often by charlatans and fakirs, occasionally by serious men of learning and reputation. These would-be rainmakers attempted to move warm moist air to cooler heights by means of large fires, fans, or vertical wind tunnels; they proposed drawing down moisture from the clouds by electricity; they bombarded the clouds with an assortment of substances, ranging from water to electrified sand and liquid carbonic acid; they liberated chemicals, usually secret, from ground installations – all in the hopes of compelling Nature to release precious drops of moisture. The most popular of all "pluviculture" proposals, however, and the subject of this investigation, was the widely-accepted belief that concussion in the air induced precipitation.

The last idea was an old one, well worn by tradition. Did not rainfall invariably accompany warfare? Plutarch, writing of Marius and his clash with the Teutons in 102 B.C., had noted that

> . . . extraordinary rains pretty generally fall after great battles; whether it be that some divine power thus washes and cleanses the polluted earth with showers from above, or that moist and heavy evaporations, steaming forth from the blood and corruption, thicken the air, which naturally is subject to alteration from the smallest causes.[3]

This was written before the coming of gunpowder, but eventually at least one school of thought came to interpret the passage to mean that the din and clamor of battle created aerial concussions which in turn produced rain. Later, with the advent of gunpowder, according to Benvenuto Cellini, cannon were used to bring down rain from thunderclouds as early as 1539. In 1831 a massed group of 36,000 French soldiers were supposed to have fired their guns simultaneously in a futile attempt to test the theory and to break up an approaching thunderstorm.[4]

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[2] David Starr Jordan, "The Art of Pluviculture," *Science*, July 24, 1925, p. 81.

[3] Plutarch's *Lives of the Noble Grecians and Romans* (New York: Modern Library Edition, 1949), p. 507.

[4] Robert De Courcy Ward, "Artificial Rain: A Review of the Subject to the Close of 1889," *American Meteorological Journal*, v. 8 (March 1892), pp. 484–86; Cleveland Abbe, "On the Production of Rain," *Agricultural Science*, v. 6 (July 1892), p. 298.

Americans had also noted what they thought was a definite relationship between gunfire and rainfall. They pointed out that the firing of artillery in 1825 to celebrate the completion of the Erie Canal had been followed by a deluge, and were convinced as early as 1841 that rain could be produced artificially by concussion. In the late 1850s one John Evarts wrote a series of articles on the subject for a New York newspaper at a time, he later reported, "when it was thought very unpopular and impious to make the reference."[5] The Civil War did much to popularize the idea. Hundreds of thousands of soldiers, Yankee and Rebel alike, were convinced by firsthand experience in mud and slush that gunfire inevitably brought down torrents of rain. Supporters of the concussion theory strongly urged that careful investigations be made, on the assumption that artificial battles could be devised to benefit agriculture in dry areas. About the same time European writers were preaching the same doctrine. The Frenchman, Le Maout, had written several pamphlets on the subject, and in 1863 a book entitled *Cannons and Tempests* formalized the theory in England. Four years later another Briton, Andrew Steinmetz, published his *Sunshine and Showers,* in which he described a number of major battles which had been accompanied by rain. The British government might well test the hypothesis with "a hundred or two" cannon, suggested Steinmetz, and at the same time provide occasion for artillery practice.[6]

More important for its impact on American thinking was the book, *War and the Weather,* first published in 1871 by Edward Powers, a Chicago civil engineer. As early as 1841, according to his own account, Powers had publicized his observations that heavy gunfire precipitated rainfall. In *War and the Weather* he listed some two hundred battles which had been fought in rain. If certain engagements had not caused precipitation, he contended, it was because the guns had not been deployed properly, the firing had been too sporadic, or the wind currents had carried the moisture away.[7]

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[5] *The American Journal of Science and Arts,* v. 32 (September 1861), p. 296; *Scientific American,* November 21, 1891, p. 325.

[6] Andrew Steinmetz, *Sunshine and Showers: Their Influence Throughout Creation* (London, 1867), pp. 332–36. See also Charles Le Maout, *Exposé de la Doctrine des Condensations* (Saint-Brieuc, 1856), pp. 1–17; *Météorologie Effets du Canon & du son des Cloches sur L'Atmosphére* (Saint-Brieuc, 1861), pp. 1–15.

[7] Edward Powers, *War and the Weather, or, the Artificial Production of Rain* (Chicago, 1871), pp. 9–76.

In this book, in a letter to the Chief Signal Officer, and in at least two memorials to Congress, one presented by Representative Charles B. Farwell of Illinois in 1874, Powers urged the federal government to set aside funds for experiments near a number of arsenals throughout the country. Three hundred cannon would suffice, he said, and they should be positioned in such a way as to create opposing shocks to mix warm and cold air currents. Artillery should be set in two lines facing each other, or arranged in a circle a mile or so in diameter with the muzzles pointing inward and upward. Firing should be rapid and simultaneous by electrical detonation, and a second, heavier barrage should follow the first by a few hours. "A well-defined method of causing rain to fall at will" – formerly thought to be a Divine prerogative – might well be within reach, predicted Powers, if the government would make "an earnest inquiry into the truth."[8]

Powers received widespread support, though more from the layman than from scientific quarters. The editor of *Scientific American* could see in Powers' proposals "a far better use of cannon than to devote them to the slaughtering of human beings." Amateur observers frequently cited examples to support the concussion theory and suggested careful investigations.[9] A Brooklynite urged the government to fire fifty rounds of heavy ammunition from every fort in the arid part of the country to break the drought, which, he said, threatened in 1874 to cause the nation "an untold daily loss, and prospective high prices and thereby want of food, want of clothing and want of comforts, to many thousands during the coming winter." The very dry winter of 1877–1878 in the West accentuated the discussion and prompted the observation that rain usually followed Fourth of July celebrations.[10]

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[8] *Ibid.*, pp. 4, 87–88; *Congressional Record*, February 28, 1874, p. 1882; *The American Agriculturist*, v. 31 (February 1872), p. 46; "Production of Rain by Artillery-Firing," *House Executive Document* No. 786, 43 Cong., 1 Sess., p. 1; Powers to General Albert Myer, October 30, 1870, File P-24, Weather Bureau Correspondence, 1870 (Misc. Series), Box 294, National Archives. Weather Bureau Correspondence will hereafter be cited as WBC, with the appropriate series and dates.

[9] *Scientific American*, September 10, 1870, p. 167; *ibid.*, January 1, 1871, p. 4; *ibid.*, September 2, 1871, p. 153. For an example of a scientific rebuttal of the theory see John Tice, "Do Battles Cause Storms?" *The American Meteorologist*, v. 1 (June 1876), pp. 138–45.

[10] William H. Allee to General Albert Myer, September 14, 1874, File 1234, WBC, 1874 (Misc. Series), Box 325; *Scientific American Supplement*, April 14, 1877, p. 1070.

Powers was encouraged in his efforts by Daniel Ruggles of Virginia, veteran of the Mexican campaigns, former brigadier general in the Confederate army, and owner of a large ranch along the Rio del Bravo in Texas. In 1880 Ruggles had patented a method of inducing rainfall by explosion, contemplating the use of small, cheap balloons capable of carrying aloft explosives to be detonated by a time fuse or by electricity from the ground. The aerial concussion thus created, contended Ruggles, would condense vapor in the air, "thereby precipitating rain to sustain vegetation, prevent drought, and also purify and renovate the atmosphere during periods of pestilence and epidemics."[11]

Like Powers, Ruggles appealed to the press and to the federal government. In the spring of 1879 the Austin *Statesman* alluded to a visit by Ruggles in favorable and optimistic terms. "We have Jove's chosen successor on earth, even in this modest capital," said the *Statesman*. "He used to make it thunder at the head of his legions on battlefields, but now he devotes genius and toil to draining down from the skies, even when these are mailed in brass, genial showers and refreshing rainstorms." While the editor of the *Statesman* was not convinced that Ruggles would necessarily succeed, he did see "the beginning of the end." He wrote: "We may yet learn to ride the storm and guide the tempests and milk the juicy atmosphere, even as Jove gathered clouds when the blind old bard sang in a tropical sea three thousand years ago."[12]

Ruggles approached both the Secretary of War and the Secretary of the Navy in 1879, advocating experimentation with his invention and pointing out that "as an industrial and philanthropic scheme it stands unrivalled." He memorialized Congress, asking for an appropriation of $10,000, to be expended for tests under the Commissioner of Agriculture. Ruggles would deal with the clouds "in conformity with the Darwinian theory, by selection," he said. With the increasing need for more food in the world, he was convinced that mankind's salvation

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[11] U.S. Patent Office, *Patent Specifications* (July 1880), v. 1, pp. 642–43 (no. 230,067, July 13, 1880); USPO, *Patent Drawings* (July 1880), v. 1, p. 179; *Scientific American*, August 14, 1880, p. 106; *ibid.*, November 27, 1880, p. 432; Francis B. Heitman, comp., *Historical Register and Dictionary of the United States Army* (Washington, 1903), v. 1, p. 851.

[12] *Daily Democratic Statesman* (Austin), April 16, 1879.

lay in the application of his invention. But Congress failed to respond, and Ruggles' later attempts to interest the Chief Signal Officer were rebuffed, largely because of the opposition of trained meteorologists.[13]

The scheme received wide airing in the newspapers, but probably was not tested on any scale by the inventor. In March, 1886, he authorized Henry Pomeroy of St. Louis to conduct experiments under his patent rights. Pomeroy, a former banker who had unwisely invested and lost his money in the Wabash Railroad, had previously invented an exploding rocket for producing rain. Although he made limited tests, he had no success in using his or Ruggles' ideas.[14]

Meanwhile it was becoming more and more apparent to Western farmers that the plains were not the salubrious, luxurious Garden of Eden so graphically represented by promoters of land and railway companies. Drought struck with monotonous regularity, and more than one "sod-buster" looked anxiously toward Washington for relief. This situation, plus reports of foreign inventions to produce rain by concussion, prompted an increasing number of pleas to the War Department and to the Commissioner of Agriculture for federal action. A Californian, for example, suggested the use of naval artillery at Mare Island; an Ohio editor urged experiments near Dayton, where the old soldiers' home could supply experienced artillerymen at nominal cost. In response to such requests, both the Secretary of War and the Commissioner of Agriculture asked the Signal Office, then handling the Weather Bureau functions, for a scientific statement on the feasibility of the concussionist theory. Captain F. B. Jones, Acting Signal Officer, prepared a carefully worded and researched reply. He doubted that gunpowder explosions could bring rain, and suggested that if experiments were made they be conducted in some reasonably moist region like Kentucky when a low

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[13] Ruggles to the Secretary of the Navy, April 16, 1879, File 1073, WBC, 1879 (Misc. Series), Box 348; Ruggles to the Secretary of War, November 17, 1879, File 2119, *ibid.*, Box 351; General W.B. Hazen to Ruggles, March 1, 1884, copy, Chief Signal Officer, Letters Sent, v. 34; *Congressional Record*, January 15, March 2, 1880, pp. 362, 1268; "Memorial of Daniel Ruggles, asking for an appropriation to be expended in developing his system of producing rainfall," *Senate Miscellaneous Document* No. 39, 46 Cong., 1 Sess., pp. 7, 12–13, 17–18.

[14] Ruggles to editor, December 16, 1891, in *New-York Tribune*, January 3, 1892; Pomeroy to Charles B. Farwell, August 1, 1890, Division of Forestry Correspondence, Letters Received, Tray 46, Tier 11, National Archives. Cited hereafter as DFC.

pressure area was traversing the section but when no rain was falling or expected to fall.[15]

This was the extent of governmental action at the time. In 1890, however, Edward Powers added renewed weight to the theory with a reissue of his *War and the Weather*. Plates of the 1871 edition had been lost in the Chicago fire, and the author had no time to push his artificial rain scheme from the platform or from his desk. With recurring drought in the eighties and with what he called "hopeless" irrigation projects being popularized, he felt compelled to publish a new edition of the book. Casting aside earlier criticisms, particularly from Godkin's *Nation*, Powers specifically asked that field or siege guns from the federal arsenal at Rock Island, Illinois, be made available for experiments under the jurisdiction of the Secretary of Agriculture. He set forth detailed estimates for the cost of such tests, calculating that with permanent stations three good rains per month could be produced at a cost of $20,876 each.[16] One station for each state would be adequate. If the Department moved rapidly, Powers said, it might be able to perfect its

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[15] F.B. Jones to Commissioner of Agriculture Coleman, August 26, 1886, copy, Chief Signal Officer, Letters Sent (Misc. Series), v. 18; H.H.C. Dunwoody to Secretary of War Endicott, August 9, 1887, copy, File 5088, WBC, 1887 (Signal Series), Box 206; E.O. Wiener to W. B. Hazen, January 1883, File 250, WBC, 1883 (Misc. Series), Box 409; George H. Chase to Commissioner of Agriculture Coleman, August 7, 1886, File 7472, WBC, 1886 (Signal Series), Box 166; Thomas J. Brown to Secretary of War Endicott, August 1, 1887, File 5088, WBC, 1887 (Signal Series), Box 206. For references to foreign inventions see *Scientific American*, October 25, 1884, p. 258; *ibid.*, March 19, 1887, p. 181; *Engineering News and American Contract Journal*, v. 13, (January 1885), p. 15.

[16] Powers, *War and the Weather* (Delavan, Wis., 1890), pp. 200–201. These were Powers' estimates for two rainmaking experiments:

Mounting 200 siege guns at $10 each	$ 2,000
Rail transport for 200 siege guns at $40 each	8,000
40,000 blank cartridges at $2.50 each	100,000
50 tons of hay for wadding at $12 a ton	600
10,000 electric primers at $150 per M	1,500
Electrical battery and insulation wire	500
Services of 10 men, 26 days at $2.50 per day	650
Services of 600 men, 26 days at $1.50 per day	23,400
Rent of ground for the experiment	250
Return transportation of guns to arsenal	8,000
Dismounting and handling guns	2,000
Total	$146,900
Add 10% "for contingencies"	14,690
Total for two experiments	$161,590
Total for one experiment	$ 80,795

system in time to impress visitors to the Columbian Exposition scheduled for Chicago in 1893.[17]

Powers was read widely and quoted often; after all, his writings merely drew together what the average person already knew. The scientific world, however, tended to reject his theories and "so-called facts and cranky arguments" as unscientific and misleading. Most battles were fought in temperate zones where rain normally fell about once every three days and were usually commenced in good weather, said his critics, hence in many cases rainfall did follow battles by virtue of the law of averages.[18] But the uniformed were convinced. Powers succeeded in persuading at least one important public figure – Senator Charles B. Farwell, who had introduced his 1874 memorial into the House and who owned extensive ranch lands in Texas. It was Farwell who almost singlehandedly, so he later boasted, carried through Congress in 1890 a bill appropriating $2,000 "for experiments in the production of rain fall," to be conducted by the Department of Agriculture through its Division of Forestry.[19] It was ironic that the Chief of the Division, Bernhard E. Fernow, German-born pioneer in North American forestry, had little sympathy for the project he was to supervise. In the annual *Report of the Secretary of Agriculture* in 1890 Fernow declared tersely that he had neither men nor means to execute explosive tests and that any effort to use the appropriation as proposed by Congress "would hardly fail to be barren of results."[20]

From all sides Fernow was pelted with advice and queries from both scoffers and believers, including Farwell, many of whom presented

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[17] *Ibid.*, pp. 3–4, 135, 201–202. For some of Powers' earlier promotional efforts, see *National Republican* (Washington), February 24, 1874; *Golden Age* (New York), May 11, 1872.

[18] Anti-Powers statements are found in *Symons's Monthly Meteorological Magazine*, v. 26 (July 1891), pp. 81–82; *Scientific American*, December 20, 1890, p. 385; Harrington, "Weather Making," *Annual Report of the Smithsonian Institution . . . 1894*, p. 264; Alexander Macfarlane, "On Rainmaking," *Transactions of the Texas Academy of Science*, v. 1, (November 1893), p. 76; William Morris Davis, "The Theories of Artificial and Natural Rainfall," *American Meteorological Journal*, v. 8 (March 1892), pp. 494–95. For Powers' rebuttal, see Edward Powers, "Artificial Rain," *American Meteorological Journal*, v. 9 (August 1892), pp. 178–84.

[19] *United States Statutes at Large*, v. 26 (1890), p. 286; *American Meteorological Journal*, v. 8 (June 1891), p. 84. The head of the Division of Forestry gave Farwell credit for pushing the bill through, but stated that "Senator Jones of Nevada was also interested." Bernhard E. Fernow to Henry L. Penfield, April 30, 1891, copy, DFC, Letters Sent, Book G.

[20] *Report of the Secretary of Agriculture . . .* 1890, p. 227.

pet rainmaking theories of their own.[21] Henry Hazen, veteran meteorologist, suggested that to save money experimental explosions be made on a high mountain where observations could be easily recorded. Others, including Mark Harrington, who was soon to become Chief of the new Weather Bureau, were "somewhat amused" that Fernow should have fallen heir to the project, and emphasized the necessity of laboratory experimentation first, Congress permitting. Fernow agreed: he wished to conduct controlled tests on a small scale and desired the co-operation of the War Department and the Weather Bureau. He privately doubted that the scientific method would prevail, for "the inaugurators of the idea want to hear it thunder without any preliminaries or experiments." The undertaking and the manner in which it was conducted, said Fernow, "may lead either to most desirable advances in meteorological knowledge or to eternal ridicule."[22] Although Fernow made preliminary inquiries concerning explosives and their detonation, once his attitude had been made clear he was "excused from planning or conducting the experiments." The task was delegated to Assistant Secretary of Agriculture Edwin Willets, who in turn appointed a special agent. The agent was given a virtually free hand to direct the rainmaking experiments within the bounds of the appropriation bill.[23]

The man selected in 1891 as special agent was a Washington patent attorney, Robert St. George Dyrenforth. A person of varied background and experience, Dyrenforth had received his collegiate education in Germany, had served as a correspondent in the Austro-Prussian War, and had fought for the Union against the South. From 1871 to 1885 he was connected with the Patent Office in Washington, although there is little evidence to support his later contention that he was made Commissioner of Patents by President Cleveland. Described in 1891 as a

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[21] Farwell to Jeremiah Rusk, August 8, 1890; Laurice L. Brown to Rusk, August 26, 1890; Henry Holdes to Rusk, n.d.; J. W. Gregory to Fernow, March 14, 1891, in DFC, Letters Received, Tray 46, Tier 11.

[22] Fernow to Edwin Willets, September 29, 1890, copy; Fernow to Harrington, October 16, 1890, copy, both in DFC, Letters Sent, Book G; Hazen to Fernow, September 18, 25, 1890; Harrington to Fernow, September 30, 1890, all in *ibid.*

[23] *Report of the Secretary of Agriculture . . . 1891*, p. 194; *The Sun* (New York), August 9, 1891; Fernow to the Chief of Army Ordnance, November 18, 1890, copy; Fernow to A. W. Greely, November 18, 1890, copy; Fernow to President, Du Pont Powder Works, November 20, 1890, copy, all letters in DFC, Letters Sent, Book G; D. A. Hammond to Fernow, January 23, 1891, DFC, Letters Received, Tray 46, Tier 11.

"tall, well proportioned, and vigorous man, with a strikingly strong face – the face of a thinker, of a diplomat, of a man of the world, and also of a good fellow," Dyrenforth seems to have received his rainmaking appointment largely through the efforts of Senator Farwell, with whom he had repeatedly discussed "pluviculture" by concusion.[24] Dyrenforth also was strongly in sympathy with Powers and others of the same school. Fernow sarcastically called him "a patent lawyer in Washington, who knows more about explosives and the manner of exploding them than any other man. . . . I strongly advise everybody to have his ark ready for the deluge." Henry Hazen, a bachelor and a man of strong convictions, thought the choice particularly ill advised:

> I am inclined to think that Dyrenforth has an idea that if he can only get men heartily in sympathy with his work, the clouds or clear sky or dry air or anything else will be more likely to sympathize with his serious efforts. I give him credit for a great deal of zeal but, oh! my! with very little knowledge in this connection.[25]

Dyrenforth set to work immediately, researching in the Library of Congress and in the Patent Office. At an early date, possibly because of Ruggles' patent rights, he discarded the idea of detonating explosives attached to balloons in favor of the idea of exploding balloons filled with a highly combustible mixture of one part oxygen and two of hydrogen. He believed that explosions in the atmosphere would reduce danger to humans, and would perhaps create "something in the nature of a vortex or of a momentary cavern, into which the condensed moisture is drawn from afar, or falls." The condensation of such an explosion, he said, "may squeeze the water out of the air like a sponge."[26]

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[24] Dependable biographical information on Dyrenforth is scarce and complicated by his own fertile imagination and the fact that for purposes of simplification he dropped the "St." from his name and changed the spelling of the family name from "Dyhrenfurth." For sketches of his life, unreliable in some details, see *The Sun*, September 6, 1891; *Who's Who in America, 1901–1902* (New York, 1901), p. 332; *Who Was Who in America, 1897–1942* (Chicago, 1943), p. 353.

[25] Hazen to Fernow, August 12, 1891, DFC, Letters Received, Tray 46, Tier 11; Fernow to J. W. Gregory, March 18, 1891, copy DFC, Letters Sent, Book H.

[26] Dyrenforth to Edwin Willets, February 25, 1891, DFC, Letters Received, Tray 46, Tier 11. Fernow once implied that Ruggles and Dyrenforth were to share leadership of the experiments. Newspapers early in 1891 reported that the government had tried to purchase Ruggles' patent rights, but he had refused, insisting instead on a royalty of $100 for each explosion attached to the balloon. At this point, according to the press, the government decided to circumvent the Ruggles patent by exploding oxyhydrogen balloons. Fernow to Gregory, March 18, 1891, copy, DFC, Letters Sent, Book H; *New-York Tribune*, March 15, 1891.

After lengthy consultation with Carl Myers, balloon expert and manufacturer from Frankfort, New York, Dyrenforth ordered a number of ten-foot balloons made of varnished muslin, as well as some large kites designed to carry explosives. With the help of several chemists, including Claude A. O. Rosell of the Patent Office and John Ellis of Oberlin College, he decided upon the processes to be used for manufacturing oxygen and hydrogen. Water, sulphuric acid, and iron would be used for the hydrogen, and chlorate of potash and black oxide of manganese for the oxygen. A relatively new blasting powder, "rackarock," was selected primarily for its great power and its safety features.[27]

Late in June, 1891, Dyrenforth detonated one oxyhydrogen balloon in the air near his Piney Branch home before Daniel Ruggles and some fifty "scientific and practical observers." This and other preliminary explosions designed to test the balloon apparatus, not to produce rain, brought down only a shower of complaints from nearby residents.[28] Next came the question of a site for the major tests. Ranch owners throughout the West offered their facilities. Dyrenforth finally accepted the invitation of Nelson Morris, wealthy Illinois meat packer, to use his "Chicago" ranch, twenty-three miles from Midland in West Texas. Midland was served by the Texas and Pacific Railroad, and Morris promised not only free housing and subsistance for the experimentors but also labor and the payment of local expenses.[29]

As preparations and prefatory testing proceeded, the nation's press watched expectantly. Some newspapers, especially those in drought areas, urged haste. "Try it now, Uncle Jerry; try it now," said the Wichita *Daily Eagle*, imploring Secretary of Agriculture Jeremiah Rusk to hurry. But the New York *Tribune* contemplated the forthcoming experiments with skepticism. Its readers were reminded of the English scientific

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[27] Carl E. Myers to Dyrenforth, February 19, 1891, copy, DFC, Letters Received, Tray 46, Tier 11; "Experiments in Production of Rainfall," *Senate Executive Document* No. 45, 52 Cong., 1 Sess., pp. 5–8. "Rackarock" was a mixture of potassium chlorate and petroleum or, in some cases, nitrobenzol. Separate, the two ingredients were harmless, but when the potassium chlorate cartridges were dipped in the petroleum fluid for a few seconds, the explosive produced could be detonated like dynamite and was reputed to be as powerful as nitroglycerine, but much less sensitive to shock. *Engineering News and American Contract Journal*, June 20, 1885 ,p. 391; *Scientific American Supplement*, March 30, 1895, p. 16051.

[28] Dyrenforth's original appointment stipulated that the expenses of Ruggles in Washington should be paid for a limited time. "Experiments in Production of Rainfall," *Senate Executive Document* No. 45, 52 Cong., 1 Sess., pp. 9–10, 59.

[29] *Ibid.*, p. 9.

farming enthusiast, momentarily carried away with the potentialities of artificial fertilizers, who remarked to his hired hand that he expected someday to be able to carry the fertilizer for twenty acres in one waistcoat pocket. "Ay," said the hand, "and I doubt not yer honor can carry the crop in the other." The Chicago *Tribune* believed that accounts of rainfall following battles in the pre-gunpowder era were in themselves evidence of the fallacy of the concussion theory, and that the expenditure of public funds on such experiments was unwarranted. However, the use of private capital might be acceptable.[30] Despite the lukewarm attitude of Fernow and of the scientific world in general, Congress, in March, 1891, appropriated an additional $7,000 for rainmaking experiments. This made a total of $9,000. Farwell was instrumental in expediting this action, and Dyrenforth's appointment was extended into 1892.[31]

In July and August, 1891, the "cloud compelling" expedition began to assemble for the trip to Midland, Texas. George E. Curtis of Washington was employed as meterologist, although he could not be away from the capital for more than three weeks. Curtis was conservative in his scientific views and not inclined to see eye to eye with the concussionists. "One thing is certain," Henry Hazen wrote Fernow, "if Curtis admits anything in his favor it will be a big thing for Dyrenforth."[32] Among others who would join the expedition were John Ellis, who had much to do with procuring supplies; Rosell of the Patent Office; balloonist Myers; Edward Powers; and an aide named Keefer from Dyrenforth's law office.

Equipment and supplies came from many sources. Myers furnished the balloons and kindred apparatus; a limited number of weather instruments were provided by the Weather Bureau, now under the Department of Agriculture. The Navy Department contributed two tons of iron turnings (from projectiles) to be used in the production of hydrogen; the Smith Electrical Works of New Jersey loaned a number of dynamos to be used in detonation. Ellis purchased most of the chemicals

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[30] *Chicago Daily Tribune*, July 15, 1891; *Wichita Daily Eagle*, August 1, 1890; *New-York Tribune*, July 29, 1890.

[31] *United States Statutes at Large*, v. 26 (1891), p. 1048; *Report of the Secretary of Agriculture . . . 1891*, p. 58; "Experiments in Production of Rainfall," *Senate Executive Document* No. 45, 52 Cong., 1 Sess., p. 59.

[32] Hazen to Fernow, August 12, 1891, DFC, Letters Received, Tray 46, Tier 11.

in St. Louis, and several railroads offered free transportation west of that city. Dyrenforth was unsuccessful in acquiring surplus powder stored by the government at Fort Warren, Wyoming, but a Texas coal mine owner presented him with six free kegs of ordinary blasting powder. "The programme is elaborate and the material abundant, and the science involved exhaustive," said the Washington *Post*. "Success means the regeneration of the country."[33]

By August 7 the equipment was being unloaded at Midland, and soon Dyrenforth was deploying his forces for the coming battle against the clouds. He established three parallel lines, less than half a mile apart. In the front line, at intervals of about fifty yards and set into the ground at an angle of forty-five degrees, were sixty makeshift guns – "something like mortars" – improvised from "bell-mouthed wagon-axle boxes" and from six-inch well tubing sawed into two-and-a-half foot lengths. In addition, the front line was bolstered by explosives tamped into prairie dog holes. On the second line were the large kites, some of them twelve feet high. To the rear on the third line, which was shorter than the other two, were located the balloons to be raised and exploded aloft. Scientists later complained that Dyrenforth did not understand his problem and merely tried to imitate a battle. "The general and his lieutenant even wore cavalry boots," said one disgusted critic.[34]

On August 9, the expedition was joined by Edward Powers, a distinguished looking old man with a fine flowing beard, and in the evening a number of ground charges of "rackarock" were detonated in order to improve the firing techniques. More than twelve hours later, on the following day, rain fell, and one unidentified member of the party immediately telegraphed Farwell: "Preliminary. Fired some explosives yesterday. Raining hard today." Without hesitation newspapers in various parts of the country delightedly picked up the story. "They Made Rain," said the Denver *Rocky Mountain News;* "Made the

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[33] *Washington Post,* August 16, 1891; "Experiments in Production of Rainfall," *Senate Executive Document* No. 45, 52 Cong., 1 Sess., pp. 11–12.

[34] Macfarlane, "On Rainmaking," *Transactions of the Texas Academy of Science,* v. 1 (November 1893), p. 77; "Experiments in Production of Rainfall," *Senate Executive Document* No. 45, 52 Cong., 1 Sess., pp. 13–14.

Heavens Leak," reported the New York *Sun*. "Heavy rain fell, extending many miles," announced the Washington *Post*. The Chicago *Times* gave full credit to Farwell: "His patent detonating rain machine has been exploded in Texas and copious showers descended within a measurably short space of time. . . . He has outdone Moses."[35]

Small scale firing was conducted on the ground from August 12 through August 15 in the presence of meterologist Curtis, who arrived on the 11th. As ordinary blasting powder failed to create much concussion in the homemade mortars and the "rackrock" blew them to bits, they were abandoned in favor of dynamite and "rackarock" exploded in holes, atop of rocks, or tied to brush. Technical problems prevented the inflation of any balloons until August 16, when the first one was sent aloft and detonated. Firing continued intermittently for several days, and on August 18 a rainfall of .02 inches was recorded. Then followed a momentary lull for repairs on oxygen equipment and on personnel, the latter suffering from the effects of alkaline water. Further skirmishing coincided with a slight sprinkle on August 20, and a heavy dew three days later.[36]

The newspaper reports of these operations generally stemmed from highly optimistic specials issued from the expedition. The .02 inches of August 18 was described by the Washington *Post* as a "Hard Rain" which commenced immediately after the explosion of "rendrock" and continued for four hours and twenty minutes. According to the New York *Sun* the experiment had been a "great success," producing a six-hour rain which covered 1,000 square miles. The Chicago *Tribune* ran the headlines: "Rackarock Made Rain Come. Apparent Success of the Dyrenforth Experiments in Arid Regions of Texas." Four times, said the *Tribune*, the sky skirmishers had brought down a "drenching shower."[37]

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[35] *Chicago Daily Tribune*, August 12, 1891; *Rocky Mountain News* (Denver), August 12, 1891; *Washington Post*, August 13, 1891; *The Sun*, August 13, 1891; *Chicago Times*, August 13, 1891. See also *The World* (New York), August 13, 1891; *Cheyenne Daily Leader*, August 12, 1891; *Kansas Weekly Capital* (Topeka), August 13, 1891.

[36] "Experiments in Production of Rainfall," *Senate Executive Document* No. 45, 52 Cong., 1 Sess., pp. 20–21, 23.

[37] *Washington Post*, August 20–21, 1891; *Chicago Daily Tribune*, August 20–22, 1891: *The Sun*, August 20, 1891. See also *Brooklyn Daily Eagle*, August 20–21, 1891.

Curtis left the expedition on August 24, and on the following day there was a heavy ground and aerial bombardment until eleven P.M. When the explosions ceased, Dyrenforth said the atmosphere became "very clear, and as dry as I have ever observed it." Early on the morning of August 26, however, a heavy thunderstorm passed along the north edge of the ranch. Most of its moisture fell elsewhere, but with each renewed detonation, "the quantity of rainfall increased."[38]

Ignoring the fact that local showers had been predicted by the Weather Bureau and that barographic records showed the passage of a low pressure area over much of the Middle West and Southwest, the proud rainmakers claimed full responsibility and were supported by glowing press releases. The *Rocky Mountain News* noted that rain had fallen almost daily since the beginning of the experiments. The Washington *Post* referred to the storm of August 26 as the "grand finale of the operations at this point of Uncle Jerry Rusk's sky-stormers, and a fitting victory . . . ." A reporter for the New York *Sun* predicted that political success would reward "General Jupiter Pluvius Dyrenforth,' and that "more than one Congressman will go to Washington this winter with a rain-making bill in his pocket." In the same metropolitan journal an aspiring bard hacked out some verse for the occasion:

> I am Cloud-compelling Dyrenforth, a mighty able wight;
> I can call the clouds together with a load of dynamite;
> I can dally with the cyclone, I can monkey with the gale.
> I can fertilize the prairie where another man must fail;
> I can swell the gentle brooklet to a roaring mountain stream,
> I tell you, Me and Jerry are a pretty brilliant team![39]

Dyrenforth, Powers, and most of the other members left Midland on August 27. The gear was entrusted to John Ellis, who would make one more test if clear weather prevailed, then ship the equipment to El Paso to continue the experiments. Dyrenforth arrived in Washington tired but exuberant. Systematically berating the "scientific wizeacres" who scoffed, he insisted that his group had brought rain at least a dozen times, "always when the meterologist announced as his opinion that

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[38] "Experiments in Production of Rainfall," *Senate Executive Document* No. 45, 52 Cong., 1 Sess., pp. 16, 23, 25–26.

[39] *The Sun*, September 6, 1891; *Washington Post*, August 28, 1891; *Rocky Mountain News*, August 28, 1891.

the atmospheric conditions for a storm were most unfavorable." He would report to his superior, he said, that the appropriation "was a very wise move." The New York *World* interviewed former Senator Farwell, who predicted that when Dyrenforth submitted his official report, Secretary Rusk would request at least $500,000 and possibly $1,000,000 from Congress for rainmaking. "The Department of Agriculture has its inspectors and employees in the West," said Farwell, "and when an inspector reports that rain will be needed at a certain time in a certain region, the secretary will send on his men and appliances and make the rain." Rusk himself was quoted as saying that the press descriptions of the experiments were "underestimated" rather than overdrawn.[40]

Meanwhile at El Paso the tests entered another phase. Under the supervision of Ellis, aided by Eugene Fairchild, a colleague from Oberlin, the apparatus was moved from Midland to the border city. With the assistance of Lieutenant Shubiel A. Dyer and twenty-two enlisted men from Ft. Bliss, firing was resumed in mid-September, aerial bombs shot from mortars now augmenting the oxyhydrogen balloons. Ellis claimed to have brought showers, but his claims were dubious. Once when rain fell twenty-five miles away in almost every direction, but none at El Paso, a contributor to *Puck* observed:

> These are very funny fellers,
> Uncle Jerry's cloud-compellers.
> They mount the air to heights stupendous,
> Burst bombs with force and noise tremendous;
> And while they watch for drops of water,
> It falls just where it hadn't orter,
> By tons, in every other quarter.

After a few days the expedition moved southeast to Corpus Christi, newspapers generally agreeing that Ellis had failed at El Paso and that the city had poorly invested the $767 it contributed to buy explosives, oxygen and other gear.[41]

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[40] "Experiments in Production of Rainfall," *Senate Executive Document* No. 45, 52 Cong., 1 Sess., p. 26; *Washington Post*, August 31, 1891; *Chicago Daily Tribune*, August 22, 1891; *The World*, September 2, 1891.

[41] *Puck*, September 30, 1891, p. 87; "Experiments in Production of Rainfall," *Senate Executive Document* No. 45, 52 Cong., 1 Sess., pp. 27–32, 40. For newspaper accounts of this phase, see *Rocky Mountain News*, September 20, 1891; *Cheyenne Daily Sun*, September 20, 1891; *Minneapolis Tribune*, September 20, 1891; *Salt Lake Tribune*, September 16, 1891; *Washington Post*, October 2, 1891.

Robert J. Kleberg of the King Ranch and a few others subsidized the tests in southern Texas. Lieutenant Dyer and ten enlisted men accompanied the group from El Paso, arriving at Corpus Christi on September 23 in a rainstorm. The "rain-squeezers" postponed their activity for a few days, then took credit for the rain which followed their limited bombardment. "It was a complete success," reported the Minneapolis *Tribune* of the effort.[42]

Wet weather continued, and the party moved some fifty miles west to San Diego, a small station on the Mexican National Railroad. Here firings in mid-October brought hundreds of spectators to view the pyrotechnics at Camp Edward Powers, as Ellis dubbed the site. All were rewarded with steady rainfall. "The water was pouring down in torrents," said Ellis. Kleberg and others had furnished $1,636 for salaries and supplies, while the government expended $633 at Camp Powers. By October 19, when it disbanded, the expedition had incurred since leaving Midland an expense of $6,384, all but $1,450 having come from private sources.[43]

Dyrenforth's official report, published by Congress early in 1892, presented the experiments as successful. It contained sympathetic comments from Ellis and Lieutenant Dyer, not to mention a number of letters from onlookers who were convinced that the experimentors had "got a cinch on Old Pluvius," as one said. Eugene Fairbanks of Oberlin, whose statement was included, believed the tests "entirely successful" and that the scheme was practicable. "A tax of a few cents an acre would cover the expense of operations extending over the entire dry season," he said. "Without a doubt it will soon be a thing of the past for the Texas cotton-grower to lose two-thirds of his crop for lack of rain at the right time."[44]

Dyrenforth was optimistic, but more restrained than his subordinates. The tests were only preliminary, he reported, but from them came the inference that under favorable conditions concussion would

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[42] *Minneapolis Tribune*, September 28, 1891.

[43] "Experiments in Production of Rainfall," *Senate Executive Document* No. 45, 52 Cong., 1 Sess., pp. 34, 37–41; *Washington Post*, October 2 ,17, 19, 1891. A brief account of the San Diego experiment is also found in John C. Rayburn, "The Rainmakers in Duval," *Southwestern Historical Quarterly*, v. 61 (July 1957), pp. 101–14.

[44] "Experiments in Production of Rainfall," *Senate Executive Document* No. 45, 52 Cong., 1 Sess., pp. 53, 55.

bring down moisture from the clouds. Further experiments were needed before more definite conclusions might be drawn. Dyrenforth also went out of his way to repudiate statements attributed to him by the press and to discredit all "unauthorized, premature and undigested statements" by any member of the party.[45]

This was undoubtedly in reaction to the wildly colored and distorted accounts circulated by one segment of the press, as noted previously. For some newspapers, however, the Dyrenforth tests opened new vistas for sly humor or for more critical jabs. They might describe the project as having been too costly and inconvenient for small families and suggest that expenses be reduced by "utilizing some of Theodore Roosevelt's numerous explosions." Or, like the New York *Tribune* they might propose that since explosions brought rain, would not a serene atmosphere prevent rain? Why not send aloft string orchestras in balloons and music boxes attached to kites to sooth the clouds and halt impending rainstorms?[46]

The cartoonists missed few opportunities. One showed a jilted lover drenching the faithless damsel and his rival by means of a pocket rainmaking kit; another depicted a farmer threatening legal action if his neighbor did not keep his rain on his own side of the fence. *Puck* featured a cover showing two drummers, one representing the "Thunderbolt Rain-Producing Company," the other the "Aquarius Artificial Rain-Making Company," employing the "hard sell" on the American farmer.[47] Within a few months this would be more than idle jest: by early 1892 at least three rainmaking companies were in operation in Kansas, although none employed the concussionist method.[48]

A delightfully perceptive poem published in *Life* late in 1891, under the title "A Tale of the Rain Machine," poked fun at the Dyrenforth experiment and satirized man's puny efforts to control the elements. The poem read in part:

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[45] *Ibid.*, pp. 57–59.

[46] *Rocky Mountain News*, September 6, 1891; *New-York Tribune*, September 25, 1891; *Washington Post*, September 4, 1891. See also *The Sun*, August 24, 1891; *Kansas Weekly Capital*, October 1, 1891.

[47] *Puck*, September 9, 23, October 28, 1891, pp. 33, 75, 155; *Life*, November 12, 1891, pp. 274–75.

[48] Martha Caldwell, "Some Kansas Rain Makers," *Kansas Historical Quarterly*, v. 7 (August 1938), pp. 311–16.

Said Jeremy Jonathan Joseph Jones,
"The weather is far too dry.
So I reckon I'll have to stir my bones,
And try the effect of concussive tones
Upon the lazy sky."

So Jeremy Jonathan Joseph went
Away to the nearest town;
And there his money was quickly spent
For queer contraptions, all intent
To make the rain come down.

There were cannon, and mortars, and lots of shells
And dynamite by the ton;
With a gas balloon, and a chime of bells,
And various other mystic spells
To overcloud the sun.

The day was fair and the sky was bright
And never a cloud was seen;
When Jeremy Jonathan set alight
His biggest fuse, and screwed up tight
The joints of his rain machine.

He fired a shot, and barely two,
When the sky began to pale;
But the third one brought a heavy dew,
And the fourth a hurricane or two,
The fifth, a storm of hail.

It rained all night and another day,
And then for a year or more;
It flooded the farm and it spoiled the hay,
And drowned poor Jeremy right away,
Who couldn't stop the pour.[49]

In addition to inviting droll or barbed comments, the experiments also generated severe and outspoken criticism from editors who could see little humor in the expenditure of public funds on rainmaking schemes. An article by Dyrenforth, "Can We Make it Rain?" had appeared in the October, 1891, *North American Review,* accompanied by a mild rebuttal by scientist Simon Newcomb, who rejected the basic premises of producing rain by concussion. This exchange touched off a savage commentary by the editor of *The Nation,* who believed that in

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[49] *Life,* November 5, 1891, p. 260.

Europe a man like Dyrenforth "would never survive the shame of these ridiculous experiments." In fact, insisted *The Nation* in a subsequent editorial, "If Mr. Secretary Tracy should send out the North Atlantic Squadron to melt the icebergs on the Banks by bombarding the Gulf Stream off New York, his act would not be a whit more absurb than that of his colleague in sending his rain-making expedition to Texas."[50]

One of the most telling critics, however, was the Chicago *Farm Implement News*, one of the few papers that had a reporter at Midland to cover the experiments. Stories released by the *Farm Implement News* and by the Dallas *Farm and Ranch*, which also had had a man on the scene, were at such variance with the "specials" released by the expedition that it was soon obvious to discriminating readers that the public was being misled, deliberately or otherwise, by unidentified members of the group at Midland. In describing the party, the *News* was casual. With Dyrenforth were half a dozen scientists, "some of them having become bald-headed in their earnest search for theoretical knowledge," but lacking in practical ability: their kites would not fly properly, their tanks would not hold water, their hydrogen generator caught fire, their balloons leaked gas, and on all sides was a noticable lack of discipline and system. There was "too much ballast" – too many young men along for "a pleasant summer excursion at government expense." Worse yet, the *Farm Implement News* cast serious doubt as to the origin of rain that did fall, pointing out that the period from mid-June to mid-September was the normal rainy season for the Midland area. The self-styled rainmakers merely took credit for moisture due to natural causes, the journal charged. Indeed, it was sometimes raining before the firing commenced, and in practically all cases the rain had been previously predicted by the Weather Bureau.[51] A cynical cartoon in the *Farm Implement News* showed Dyrenforth in his cork helmet, rallying his "professors": "Hurry up the inflation, touch off the bombs, send up the kites, let go the rackarock; here's a telegram announcing a storm. If we don't hurry, it will be on us before we raise our racket."[52]

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[50] *The Nation*, October 1, 22, 1891, pp. 253–54, 310; *North American Review*, v. 153 (October 1891), pp. 385–404.

[51] *The Farm Implement News*, v. 12 (September 1891), p. 72.

[52] *Ibid.*, v. 12 (October 1891), p. 25.

Meteorologist George Curtis, whose formal report was never printed, substantiated these criticisms not only in a series of published articles but also in a blunt letter to Fernow of the Division of Forestry in February, 1892. He pointed out that the general public had been misled and the federal government was partially responsible. How could the public know that the appropriation had been largely the work of one man and that the resulting experiments had not been part of a closely calculated program worked out in detail by scientists in the Department of Agriculture? The fact that these were government experiments and were reported as successful by many newspapers gave confidence and left the way open for charlatans to prey upon public gullibility, said Curtis. Already, he informed Fernow, companies had been formed to capitalize on rain production, and the subject was "assuming serious and even disastrous importance among the farmers of the northwest." Curtis believed that the federal government should correct the popular impression of the Texas tests; in fact he volunteered to tour the plains states lecturing and explaining that the Department of Agriculture was not responsible for the "unfortunate matter" but that it had been "imposed by Congress." Fernow passed these comments along to Mark Harrington, the versatile and brilliant Chief of the Weather Bureau, with the suggestion that the Department issue a circular "disavowing any conclusions to be arrived at from the experiments," this to be widely publicized through the press. Even Secretary Rusk evidenced a growing skepticism. His *Report* for 1891 merely stated that "so far as the production of explosions is concerned, these experiments were eminently successful. As regards the object thereof, namely, the production of rain, I have no data yet on hand which would justify me in expressing any conclusions on the subject."[53] Thus high officials of agencies within the Department of Agriculture were either noncommittal or were displaying concern over public reaction to the experiments. That the matter was suddenly dropped and no warning

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[53] Curtis to Fernow, February 9, 1892; Fernow to Harrington, February 10, 1892, both in File 1791, WBC, 1892, Box 840; *Report of the Secretary of Agriculture . . . 1891*, p. 58. For Curtis' published comments, see "The Facts About Rain-Making," *The Engineering Magazine*, v. 3 (July 1892), pp. 548–51; "Artificial Rain-Making," *Western Christian Advocate*, September 24, 1891; "Rain-Making in Texas," *Nature*, October 22, 1891, p. 594; *The Inventive Age*, December 29, 1891, p. 2.

circular issued was probably due to the decision of Congress to continue the tests for another year.

The first appropriations of $9,000 had been expended by the end of 1891. In the following spring, Congress considered the matter of further funds. The House Committee on Agriculture read Dyrenforth's formal report and listened to "complete and exhaustive" statements by the rainmaker, by Secretary Rusk, and by Assistant Secretary Willets, then recommended continuance of the "pluviculture" project. According to Representative Hatch, Dyrenforth made a "strong impression" on the Committee by his candor, being "perfectly positive in his statement that every experiment that he had made with these explosives had produced rainfall in greater or less degree. . . ."[54]

Some opposition was voiced in the House. The government should not meddle with the ways of Providence, said some. What would prevent the government from using the rainmaking power to aid its friends and punish its enemies? asked Representative Enloe of Tennessee. Kilgore of Texas called the experiment "a dead failure," and suggested prayer meetings instead. Even if artificial raimaking were feasible and desirable, said Kilgore, it was a matter for the individual states, not the national government. Others feared bureaucracy; some complained of no provision in the law to halt the rain. Several asked why the Weather Bureau, which since July, 1891, had been under the Department of Agriculture, was not handling the project instead of the Division of Forestry. It was argued that the Secretary of Agriculture himself was lukewarm on the matter. When someone complained that all farmers would not wish rain at the same time, it was suggested that the Signal Service might give all farmers two weeks notice before rain was produced. In the end, however, after a lengthy discussion embracing such diverse topics as the importance of religion and the effect of the Suez Canal on the vegetation of Africa, Congress passed an agricultural appropriations bill which provided $10,000 for additional rainmaking experiments in 1892.[55]

The end of October, 1892, found Dyrenforth's scientists busy at Fort Meyer, across the Potomac from Washington, experimenting with several new explosives, including "rosellite," invented by Claude Rosell.

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[54] *Congressional Record,* June 8, 1892, p. 5153.

[55] *Ibid.,* pp. 5155–58; *United States Statutes at Large,* v. 27 (1892), p. 76.

Henry Hazen, Professor of Meteorology for the Weather Bureau, and John Ellis were in charge of these nocturnal explosions. Their work brought "profanity in seventeen different languages drizzling down from chamber windows, accompanied by an electric display, all the way from the Chinese legation to the Italian quarter," as Washingtonians protested their disturbed slumber. "Raised a Storm at Last," smirked one local paper; "He Bombarded the Clouds," said another, "And Brought Down a Storm of Public Indignation."[56] Both Ellis and Hazen, the latter now apparently an advocate of the concussionist theory, gave unauthorized news interviews, blithely taking credit for rain which fell, ignoring the fact that rain had been forecast for several days and had extended over an area 1,000 miles wide.[57]

After the Fort Meyer preliminaries, the "drought busters" moved to San Antonio, Texas, where it was predicted they would do much better. There they could "do their own counting and their own certification." The government weather observer had been alerted to make careful but unobtrusive notes on what transpired.[58] With Dyrenforth supervising, the 1892 expedition established Camp Farwell at Alamo Heights, four miles north of San Antonio, and prepared again to "wring or coax or startle water from the skies." Alexander Macfarlane, a physicist from the University of Texas, visited the camp on November 20 and found federal troops unpacking equipment and helping to mix "rosellite" under the personal direction of Rosell. As half of the $10,000 appropriation was being held back for later trials in South Dakota, several large Western landholders, including Charles Farwell, contributed a total of $8,000 for the San Antonio tests.[59]

At Camp Farwell a festive spirit prevailed. On Thanksgiving Day

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[56] *Washington Post,* October 30, November 4, 1892; *Evening Star* (Washington), November 3, 1892; unidentified clipping, File 1791, WBC, 1892, Box 840. Rosellite was a combination of nitrate of soda, chlorate of potash, and asphaltum oil. *Washington Post,* November 2, 1892; *San Antonio Daily Express,* December 4, 1892.

[57] *Evening Star,* November 3, 1892; Harrington to Hazen, November 4, 1892; Harrington to Rusk, November 4, 1892, both letters in File 1791, WBC, 1892, Box 840.

[58] *Washington Post,* November 6, 1892; Harrington to L. F. Passailaigue, November 7, 1892, copy, File 1791, WBC, 1892, Box 840. Ellis was also to be sent copies of all morning and evening weather maps. Acting Secretary of Agriculture to Harrington, November 7, 1892, File 1791, WBC, 1892, Box 840.

[59] Others who gave important financial aid were Washington attorney John H. P. King and John T. Dickinson of a Chicago cement firm. *Dallas Morning News,* November 22, 1892; *San Antonio Daily Express,* December 4, 1892; *Kansas Weekly Capital,* November 17, 1892.

a number of shells were fired for the enjoyment of officers and ladies who visited from nearby Fort Sam Houston; on the following day, under overcast skies, the volleys commenced in earnest and continued until rain spattered down on the morning of November 26. For Macfarlane, this "mere sprinkling" only demonstrated the impossibility of the concussionist approach. In newspaper accounts he castigated Dyrenforth and his supporters, earning as a result the wrath of Edward Powers, who now admitted Dyrenforth's incompetence but staunchly upheld the principle of the theory.[60] Governor Hogg visited the camp. Then, Reverend King of the First Baptist Church in San Antonio, viewing the rainmakers as instruments of Divine power, preached a sermon, taking as his text Leviticus 26:4 – "Then I will give you rain in due season" – and Ezekiel 34:26 – "and I will cause the shower to come down in his season; there shall be showers of blessing."[61]

By early December, with little or no rain forthcoming, Dyrenforth was under attack from all sides. The annual *Report of the Secretary of Agriculture,* issued about this time, stated that the facts did not justify the anticipations of the concussionists, and that budget estimates for the next fiscal year did not include any sum for further experiments. A number of newspapers went out of their way to laud Rusk for this action, at the same time expressing a caustic disapproval of the "far-reaching and iridescent failure" already produced at public expense. "The scheme has gone up like a rocket and come down like a stick," reported the San Antonio *Evening Star* in an editorial entitled "Fakes and Fakirs." "Now let the rainfaking department of the agricultural bureau betake itself to greener fields and pastures new." The editor of the San Antonio *Daily Express* injected more color and less bitterness into his comments:

> General Dyrenforth assaulted the atmosphere all along the line. He attacked front and rear, by the right and left flank, in the open field and by Indian ambuscades. He shot high up and low down, striving to catch it "between wind and water." He exploded rosellite that tore great holes in the bosom of Mother Earth, and balloons that ripped the circumambient

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[60] *San Antonio Daily Express,* December 4, 1892; *The World,* December 4, 1892; *Chicago Daily Tribune,* December 11, 1892. According to Weather Bureau information, .04 inches of rain fell at San Antonio on the morning of November 26. Four days earlier, prior to the tests, .02 inches had fallen. Chart and remarks for November 22, 25, and 26, 1892, compiled by L. F. Passailaigue, File 1791, WBC, 1892, Box 840.

[61] *San Antonio Daily Express,* November 30, 1892; *The Daily News* (San Antonio), November 28, 1892.

> ether to ribbons. Great guns belched, shells screeched and cracked and enthusiastic spectators yelled "fer Jim Hogg an' the Kermishun," but not a drop of rain leaked through the shattered empyrean. . . . The sky remained clear as the complexion of a Saxon maid.[62]

According to the Washington *Post,* in one night twelve balloons, one hundred and seventy-five shells, and 1,200 charges of "rosellite" were exploded, "and yet the whole hullabaloo did not lead to any more water than would furnish a canary bird with its morning bath." The only real dampness resulting, said the *Post,* was that which fell on the enthusiasm of Dyrenforth's backers. The Chicago *Times* believed that the money expended would have been "less ridiculously employed if it were devoted to the attempted manufacture of whistles out of pig's tails."[63]

This uninspiring San Antonio climax brought to an end the government's rainmaking experiments in the nineteenth century. In May, 1893, Dyrenforth, now dubbed "Dryhenceforth" by the wags, wrote the new Secretary of Agriculture, J. Sterling Morton, concerning the disposition of the unexpended $5,000 of the 1892 appropriation. Morton requested Harrington of the Weather Bureau to prepare a tactful reply to the effect "that we do not desire to cannonade the clouds any longer at Government expense." Harrington's letter, which went to Dyrenforth over the signature of Morton, instructed that the unspent balance revert to the Treasury, inasmuch as "the present state of our national finances" did not warrant its use. Because the appropriation was not for the large scale production of rain, but to devise equipment and methods to demonstrate the feasibility of the concussion theory, and because Dyrenforth had reported that suitable apparatus and techniques had been developed, Morton assumed that the purpose had been fulfilled. State and private funds should now replace federal support, he suggested. The letter ended on a less sympathetic note, one which reflected the attitude of the Weather Bureau:

> . . . quite independent of the question whether light rains have been produced by dynamite explosions, yet, in my opinion, there can be no doubt

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[62] *San Antonio Daily Express,* December 2, 1892; *San Antonio Evening Star,* December 2, 1892; *New-York Tribune,* November 21, 1892; *Detroit Tribune,* November 24, 1892; *Report of the Secretary of Agriculture . . . 1892,* p. 55. Clippings from other newspapers are also found in File 1791, WBC, 1892, Box 840.

[63] *Washington Post,* December 5, 7, 1892; *Chicago Times,* December 3, 1892.

> that this method is too noisy, uncertain, expensive and dangerous to have any commercial value and I cannot consider it as an economical expenditure of Government moneys.[64]

Dyrenforth returned to the practice of law and relative obscurity, his name flashing across the headlines only at his death in 1910, when his will made provision for a strange, impossible super-education for his grandson.[65]

But the "cloud-compelling" experiments were not soon forgotten, though the federal government tried to do so. Dyrenforth's final report probably was destroyed with many of the old records of the Department of Agriculture, but Congress authorized the reprinting of his first report (*Senate Executive Document* No. 45, 52 Congress, 1 Session) in 1899. The number of misleading newspaper accounts which appeared based upon it caused the Department no little embarrassment and prompted the issue of a memoradum disclaiming it.[66] Secretary Morton composed a form letter answering all queries regarding the experiments, pointing out that they were preliminary only and that the results did not justify further tests.[67] Most of the inquiries were passed to the Weather Bureau, which down to the mid-twentieth century sought without success to minimize the Dyrenforth episode.

Immediately following the Texas fiasco there was a small rash of independent efforts. In 1893 tobacco growers in Connecticut, for example, attempted to explode dynamite from balloons, but panicked and abandoned their plans when the equipment caught fire. By preconcerted agreement in May of the same year, seven small Kansas towns simultaneously bombarded the heavens in an effort to break the drought. An observer noted:

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[64] Morton to Dyrenforth, May 16, 1893, copy; Harrington to Morton, May 16, 1893, copy, both letters in File 7192, WBC, 1893, Box 869; Morton to Harrington, May 13, 1893, File 7813, *ibid.*, Box 873.

[65] The twelve year old grandson was to renounce Catholicism. In rapid succession he was to complete high school, an academic program at Harvard, law reading at Oxford, a full course at the Military Academy at West Point, six months' service in the Army, and a complete course in law. In between were to be summers in Europe and training in music, dancing, and the manual arts. *Washington Post*, July 9, 1910; *The Sunday Star* (Washington), July 10, 1910.

[66] *Congressional Record*, January 23, 1899, p. 919 ;Willis L. Moore to Secretary of Agriculture James Wilson, April 11, 1899, copy; Department of Agriculture Memorandum, April 13, 1899, both letter and memorandum in File 3771, WBC, 1899, Box 1368.

[67] Undated stereotyped copy, U.S. Weather Bureau Library, Suitland, Maryland.

> Cannon and every explosive within reach were brought into requisition, and hundreds of men and boys with guns blasted away at the skies until 2 P.M., when the clouds opened their reservoirs and drenched the earth. . . .[68]

The same clouds also drenched the earth in the greater part of five states, as the Weather Bureau had earlier predicted. The government was frequently asked to provide artillery or other equipment which local experimentors might substitute for makeshift apparatus.[69] In 1903, with forest fires sweeping the Adirondacks, Carl Myers, Dyrenforth's original balloonist, prepared a number of oxyhydrogen balloons to bring rain and quench the flames, but Nature provided a rainstorm before he could go into action. Again in 1910, as fires threatened the Pacific Northwest, Dyrenforth was mentioned, and it was suggested that artillery be fired on Puget Sound to bring moisture and end the wasteful destruction.[70] Between 1911 and 1914, when he put a bullet through his brain, Charles W. Post, the Michigan cereal king, not only expended $50,000 in rainmaking tests in Texas but engaged in an altercation with the United States Weather Bureau over his much-publicized experiment at Battle Creek.[71]

Although serious French studies during World War I showed no connection between explosions and rainfall, many Americans continued to believe otherwise. As late as 1930 there were reports of "successful" rainmakers in Indiana, who exploded dynamite on poles. In the depths of the depression concussion was often suggested as a means whereby the federal government could end the drought. In 1935 a Texan urged President Roosevelt to declare a national "Explosion Day," at which time each county in the United States would fire explosives to bring rain. A year later a Kansas City attorney pleaded with Secretary of Agriculture Henry A. Wallace to put one hundred pieces of field artillery under his direction so that he might produce rain in any part

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[68] *American Meteorological Journal*, v. 10 (December 1893), p. 357; *Scientific American*, September 23, 1893, p. 200; *New-York Tribune*, August 20, 1893.

[69] H. S. Lehman to Secretary of Agriculture, December 11, 1899, File 11227, WBC, 1899, Box 1414; G. A. Loveland to Willis Moore, August 23, 1901, File 8013, WBC, 1901, Box 1556; Andrew A. Manning to J. J. McSwain, August 14, 1925, copy, WBC (1925–1930 Series), Box 2810.

[70] *New-York Tribune*, June 6, 11, 1903; *The Evening Post* (New York), September 2, 1910.

[71] The story of Post's experiments in Texas is ably told in Charles Dudley Eaves, "Charles William Post, the Rainmaker," *Southwestern Historical Quarterly*, v. 43 (April 1940), pp. 425–36. Information on the argument with the Weather Bureau is in WBC (1912–1924 Series), Box 2454.

of the country within twenty-four hours. The writer, who suggested that this might be done as "army exercises," was Benjamin M. Powers, son of the author of *War and the Weather*.[72]

In a practical and in a scientific sense, the rainmaking experiments from 1891 to 1892 were poorly conceived and ineptly executed. That one man – Farwell – should have been largely responsible for the passage of the bill authorizing the tests is but a commentary on the politics of the congressional system. That the so-called "scientific" experiments should have fallen under the supervision of Dyrenforth is ironic. In his desire to prove, not merely test, the concussion theory, he displayed a bias in a most unscientific way. There is further irony in the fact that the head of the division ostensibly in charge of the tests disagreed in principle and disavowed them at every opportunity. The Weather Bureau was hardly consulted, probably because Dyrenforth was aware of its disapproval and wished as little interference as possible. The War Department, which might have provided artillery and technical aid, contributed a handful of men – mostly for routine tasks – and gave little professional advice. Thus the experiments were conducted by men of definite bias, amateurs as it were – chemists, electricians, balloonists, and lawyers – not by trained experts in meteorology and ordnance.

There is no doubt that Dyrenforth failed, despite contemporary publicity to the contrary. Where rain fell coincident with detonations, it was in storm areas already existing and had been predicted on the weather charts. And invariably, where the weather man did not co-operate, as at San Antonio, precipitation was not forthcoming.

The tests should have done much to dispel popular belief in rainmaking by concussion, but because of the misleading accounts carried by the press, the theory may have been strengthened in the public mind. Not until after World War II was the theory finally displaced, and then only by cloud-seeders dropping dry ice, silver iodide, or carbon particles from the air. And even these later "sky-stormers" would suffer greatly from overenthusiastic and unreliable publicity reminiscent of the Dyrenforth era.

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[72] Leo H. Fisher to Lawrence Richey, August 11, 1930, WBC (1925–1930 Series), Box 2810; R. B. Castle to Secretary of Agriculture, n.d. (received May 6, 1935); E. L. Torrance to Roosevelt, June 7, 1935, telegram, these last two items in WBC (1931–1935 Series), Box 2998; Benjamin M. Powers to Henry A. Wallace, July 7, 1936, WBC (1936–1942 Series), Box 32.

SOURCES OF THE NAME "CALIFORNIA"

by

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THE INSPIRATION for placing the name "California" permanently on the North American map is recognized by historians and place-name geographers as having had its immediate origin in *Las sergas de Esplandián,* a popular romance of chivalry written shortly after the voyages of Columbus. The willingness of the post-medieval mind to accept the "fabulous" resulted in beliefs in mythical lands, not the least of which was one populated by Amazons.[1] Such a land was described in this fanciful tale, one of the many late fifteenth and early sixteenth century "pulp" stories written by García Ordóñez de Montalvo as a sequel to the better-known prototype, *Amadís de Gaula. Las sergas* was first published perhaps as early as 1508 and enjoyed considerable vogue, running into numerous editions and telling the story of "the prowess of Esplandián," son of Amadís.

Charles E. Chapman in his *History of California* devotes a chapter[2] to a consideration of the origin and application of the name California,

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*The author gratefully acknowledges the valuable suggestions of Professor Laudelino Moreno of the Department of Spanish at University of Southern California.

[1]An interesting treatment of the "fabulous" in the New World, including comments on the Amazons, is found in Luis Weckmann, "The Middle Ages in the Conquest of America," *Speculum,* v. 26 (1951), pp. 130–33.

[2]C. E. Chapman, *History of California: The Spanish Period* (New York, 1921), pp. 55–59.

and discusses both sound and unsound hypotheses. A recent well-executed summary of writings on the subject has been published by the California place-name authority, Erwin G. Gudde.[3] Both Chapman and Gudde raise questions which this paper will attempt to answer.

Uncertainty surrounds several matters concerning the application of the term California. We do not know when it was first applied, by whom, or under what circumstances. Nor will this article shed much light on these matters; rather, it will investigate some of the Hispanic precedents for the name as found in the literature then available to García Ordóñez de Montalvo, the author of the book from which the name was derived. Sometime after the discovery of California in 1533, and prior to 1542, the name not only had been applied but also so accepted that at the latter date it was unnecessary to identify the place. In 1542, in the documents of the Rodríguez Cabrillo expedition, the term California, which then designated a portion of modern Baja California, was used as a geographical name of some standing. Some writers claim that the application of the name may have been derisive; others indicate anticipation; some would even credit clairvoyance. Exponents of Hernán Cortés assert that he bestowed the name.

Gudde has indicated that *Las sergas* was not necessarily familiar to the navigators who first saw California.[4] The possibility of proving that the namer of California was carrying a copy of Ordóñez de Montalvo's work when land came into sight fades with our inability to determine who he was or when the event happened. But the fact that books of the Amadís type were available in quantity in New Spain at the time of California's discovery is demonstrable. The first known printing of *Las sergas de Esplandián* was in 1508 or 1510, the latter edition being done by a German printer-publisher of Sevilla, Jacob Cromberger. By 1525 this firm, publisher by then of numerous editions of the work, won from Emperor Charles V — of the Holy Roman Empire and Carlos I of Spain — a monopoly of the book trade with Mexico; and in 1527 Jacob's son, Juan Cromberger, opened his own publishing business. Upon the death of the elder Cromberger in 1529 an inventory of his stock showed 640 copies of books of the Amadís group, including 162

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[3] E. G. Gudde, "The Name California," *Names*, v. 2 (1954), pp. 121–33.
[4] *Ibid.*, p. 131.

copies of *Lisuarte de Grecia,* also a sequel to the Amadís and in which the California Amazons reappear. Clearly by 1542 the Crombergers, established in the book business in Spain and with a press in Mexico since 1539, had a long period to sell their books not only to sailors and soldiers leaving Sevilla, the Spanish port of embarkation for the New World, but also through book shops in Mexico City.[5] *Las sergas de Esplandián* was one of their best sellers. A Spanish west coast explorer could easily have acquired a copy or known the tale.

Writers on the origin of the term California seldom resist the temptation to point to the pertinent passage in the Ordóñez romance of chivalry. It has invariably been done by quoting a nineteenth century translation by Edward Everett Hale. The retranslation into modern English, presented below, may afford helpful new insights:

Chapter 157

Concerning the frightful and unexpected help in favor of the Turks with which Queen Calafia arrived at the Port of Constantinople.

I want you to learn now of a thing so strange that neither in the case of man's memory nor his writings could it be found: how on the following day the city was on the point of being lost, and how its salvation came from the very source of its danger. Know that at the right hand of the Indies[6] very near the location of the Garden of Eden, there once was an island called California, which was inhabited by black women without any man being among them, so that their way of life was almost Amazon-like. They had strong bodies and valiant, fervent hearts, and had great courage. The island itself was the most impregnable to be found in the world, due to crags and bold rocks. Their arms were all of gold, as were also the harnesses of the wild beasts on which, after having tamed them, they rode; for in all the island there was no other metal. They lived in well-decorated caves. They had many warships, in which they went elsewhere to carry out raids, and the men they caught they took with them, killing them as you will later read. And sometimes when there was peace with their adversaries, these women mixed freely with the men and had carnal unions, from which it resulted that many were left pregnant; and if they gave birth to a female, they kept her; but if to a male, he was killed immediately. The reason for this, as one learned, was that in their calculations they determined to reduce the men to such a small number that without effort they could domineer

[5] Irving A. Leonard, *Books of the Brave* (Cambridge, 1949), pp. 96–98.

> them, along with their lands, and could keep those men that they considered necessary so the generation should not perish. On this island called California, on account of the great roughness of the land and the infinite multitude of wild animals that lived there, there were many griffins, which are not found in any other part of the world. . . . There reigned over the island of California a giant queen, very beautiful as compared to the others, in the flower of youth, eager in her resolution of performing great deeds, valiant in action and cunning, stemming from a brave heart, more so than any of the others that had ruled that dominion before her.[6]

Several items should be noted. The queen of the Amazons of California is Calafia; she is of giant stature and, of course, very brave. Her kingdom is on the right hand of the Indies – *i.e.*, to the east.[7]

In addition to her reappearance in the *Lisuarte de Grecia,* the fabled queen is the subject of a later novel, Vicente Blasco Ibáñez's *La Reina Calafia;* but unfortunately he shows no interest in the problem under consideration. In fact, his story only slightly concerns the Amazons and their griffins.[8]

It is possible, as one writer has suggested, that the author of *Las sergas* coined the name California for the occasion, thus depriving researchers of the opportunity of pondering its origins. None of the investigators of the question have been satisfied with this answer. In addition to *Las sergas,* other possible sources of the name California have been suggested; three were encountered during recent research in the Spanish archives:

1 – A combination of *cal* (lime) or *cálida* (hot) with *fornax* (Latin for oven or furnace) or *forno* (Catalan for oven).

2 – Greek words *Kali* and *ornis,* or beautiful bird, in honor of the griffins.

3 – *Colofón,* Spanish for resin.

4 – *Kalifón,* Hispano-Arabic for large province.

5 – *Californo,* Catalan for hot oven.[9]

6 – *Calafia* or *Kalafia,* as a female form of Caliph.

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[6] An Italian translation of *Las sergas de Esplandián* indicates the location of California "at the right hand of India." See *Le Prodezze di Splandiano,* translated by Mambrino Roseo (Venice, 1573).

[7] The Indies, of course, meant any of the overseas areas in the direction of Asia.

[8] Vicente Blasco Ibáñez, *Obras Completas* (Madrid, 1946), pp. 174–80.

[9] The first five derivations are from Ruth Putnam, *California: The Name* (Berkeley, 1917), pp. 356–62.

7 – *Cala* (Spanish for cove) and *fornix* (Latin for vault).[10]

8 – "Because the climate was extremely hot and burning."

9 – "Because an Irishman, who was travelling, said that the island looked like the one where Calpurnius (Califurnio), the father of Saint Patrick, was born."

10 – "Because of the caliginousness and of the Cerro de la Giganta, which is one of the highest and is covered with crags, shells and rocks, and that many seashells had been gathered there since the Flood, and that this is the best material for making quicklime to build forts."[11]

There are also many place-names in Spain that have a *Cal* or *Cala* beginning – Calatayud, Calahorra, Calaf and Calafell.[12]

Regarding etymological derivation No. 10, the reference to the Hill of the Giantess *(Cerro de la Giganta)* in connection with the area around La Paz, and as an explanation of the place-name California, is of interest. There is frequent reference to the Giantess in the early geography of Baja California, and at a seemingly appropriate location – that of early Spanish activity. Whether the "sleeping woman" idea, frequently associated with mountain ridges, or some other idea brought about this naming, is unknown. It is even possible that seeing the sleeping giantess inspired the naming of the land for another giant woman of interesting background – Ordóñez de Montalvo's Amazon queen Calafia. But this is merely conjecture. There are several illustrations of the giantess idea. In *Collección de documentos inéditos para la historia de España,* it is noted that in seeking the Strait of Anián, people "say that Gran Quivera, the pueblos of the Rey coronado, the island of La Giganta, the laguna de Oro, and the Rivers of Tizon and Coral will be discovered."[13] A more definite geographical location is suggested in the statement that Jesuit Fathers Piccolo and Salvatierra

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[10] Derivation No. 7 is presented in Chapman, *History of California,* p. 56.

[11] Source of the final three derivations is "California Historia y Viajes," tomo 1, doc. 1, c. 1720. Unpublished manuscript in Museo Naval, Madrid.

[12] George R. Stewart, "More on the Name California," *Names,* v. 2 (1954), p. 250. To these might be added such place-names as Calatañazor, Calanda, Calacelte, Calatrava, Calatoráo, Calamocha and Calaspara. Inspection of a map of Spain reveals that most of the *Cal-* place-names are in Catalonia, Aragon, and Castilla la Nueva.

[13] "Declaracíon que hicieron en 17 de setiembre de 1636 D. Alonso Botello y Serrano y D. Pedro Porter y Casanate . . ." which appears as part of a documentary appendix to Martín Fernández de Navarrete, "Examen historico-crítico de los viajes y descubrimiento apócrifos del capitán Lorenzo Ferrer Maldonado, de Juan de Fuca, y del almirante Bartolomé de Fonte," *Colleccíon de documentos . . .,* v. 15 (Madrid, 1849), p. 220.

established four missions in "Puerto de Paz, Giganta, and adjacent lands." Three of these four missions were Loreto, San Francisco Xavier and Dolores.[14] On a modern map of Lower California one can find the Sierra de la Giganta stretching approximately from Comondú on the north to Bahía de la Paz on the south. Could this be the queen of the Amazons?

What of the inspiration which led the romancer of Iberia, García Ordóñez de Montalvo, to name his queen Calafia and her land California? Several researchers have been interested in this. Chapman "plausibly and interestingly" links California with the now famous French epic poem and literary masterpiece, the anonymous *Chanson de Roland*. There is a superficial similarity between the name California and the final geographical term in the following section of the *Chanson:*

> Mor est mis nies ki tant soleit cunquere
> Encuntre mei revelerunt li Saisne
> Et Hungre et Bugre et tante gent averse,
> Romain, Puillain et tuit cil de Palerne
> Et cil d'Affrike e cil de Califerne.

Although all of the other places can be satisfactorily located, there is only the speculation that Califerne refers to the caliph's domain. There is also the possibility that Califerne might have been a contrived word to rhyme with Palerne. By implication it is located somewhere beyond Africa in an unspecified direction, if one assumes that the places named continue their sequence away from the writer. There is nothing in the *Chanson* that conjures up visions of Amazons or even a single female warrior; nor is it likely that Ordóñez de Montalvo was acquainted with an ethnically disassociated epic. According to our knowledge of the author of *Las sergas de Esplandián,* he had never seen any more of the world than his home area of Castilla la Vieja and León, with perhaps some knowledge of Castilla la Nueva and Andalucía. He had been a mil-

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[14] The fourth mission is not indicated in the document. "California Historia y Viajes," tomo 1, doc. 1, MS, Museo Naval.

[15] In the first edition of the Amadís, of which Ordóñez was editor and perhaps author, the name is given as Garcí Rodríguez Montalvo. In subsequent editions it was Garcí Ordóñez de Montalvo. It is difficult to establish authorship for romances of chivalry, for the narrative was frequently based on alleged discovery of an ancient manuscript. The story was a "translation," thereby giving the impression of historical foundation. See Leonard, *Books of the Brave,* p. 19. Garcí is the old Spanish equivalent for García.

itary man and at the time of one of the printings of his work was serving as *regidor* in the town of Medina del Campo in the province of Valladolid. It is thought that Ordóñez was of somewhat advanced age at the time of his literary success.[16] Accordingly, Chapman's hypothesis concerning the *Chanson* as a source of inspiration to Ordóñez de Montalvo was branded as untenable by Gudde, and rightly so. The French epic had not been discovered, literarily speaking.

Another explanation of the source of the name has been suggested by a former professor of German, A. E. Sokol, in "California: A Possible Derivation of the Name."[16] In the German *Der Sachsenspiegel* and also in the *Schwabenspiegel,* Sokol finds reference to a woman who, acting as a lawyer, had lost certain privileges for her sex because she misbehaved before the court. In the former work, written by Eike von Repgow about 1230, we find reference to a woman whose name is reasonably close to the name under consideration, being Calefurnia (and other minor variations). In the *Schwabenspiegel* the specific act of misbehavior seems to have been her indiscreet cavorting in the presence of the king. Apparently this act was most inappropriate.

It is natural that a Germanicist should find Calefurnia first within his chosen field; but Sokol suggests that the infamous woman's name was known to medieval lawyers in Spain as well as in Germany:

> We know that Justinian Roman law was received in Spain during the thirteenth and fourteenth centuries, and that the great Spanish legislator of the Middle Ages, Alfonso X, the Wise, issued his most renowned legal work, the *Siete Partidas,* in the year 1265, and that it was framed in imitation of Justinian's *Pandects.* It is, therefore, also possible that the California anecdote became known in Spain at an early date.[17]

By consulting Alfonso's classic code, Sokol would have found that his idea was correct. Ordóñez de Montalvo did not need a German source for the Calefurnia story; the word California seems to have more logical association with the contemporary *Siete Partidas* than with the *Sachsenspiegel.* In the basic code of Hispanic law, as laid down by Alfonso el Sabio, greatly revered savant of medieval Spain, the brazen, outspoken female advocate is mentioned:

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[16] A. E. Sokol, "California: A possible Derivation of the Name," *California Historical Society Quarterly,* v. 28 (1949), pp. 23–30.

[17] *Ibid.,* p. 28.

Tercera Partida *Titulo VI. De los Abogados*

Ley III. Quien non puede abogar por otri, e puede lo fazer por si.

Ninguna muger quato quier que sea sabidora, non puede ser abogado en juyzio por otri. E esto por dos razones. La primera, porque non es guisada, nin honesta cosa, que la muger tome officio de varon estando publicamente embuelta co los omes, por razonar por otri. La seguda porque antiguamente lo defendieron los sabios, per vna muger que dezian Calfurnia, que era sabidora, porq era tan desuergoncada, que enojaua a los juezes con sus bozes, que non podian con ella. Onde ellos catando la primera razon q diximos en esta ley, o otrosi veyendo, que quando las mugeres pierden la verguenca, es fuerte cosa de oyrlas, e de contender con ellas. E tomando escarmiento del mal que sufrieron de las bozes de Calfurnia, defendieron que ninguna muger, non pudiesse razonar por otri.[18]

And in English:

Third Code. *Title VI. Concerning lawyers.*

Law III. Those who cannot advocate for someone else and those who can do it for themselves.

No woman, no matter how wise she may be, can be advocate in a judgment for another person. And this for two reasons. The first because it is neither a fit nor proper thing that a woman take the place of a man, being publicly implicated with men to advocate for someone else. The second, because anciently the wise men decreed it on account of a woman who was wise called Calfurnia, because she was so brazen that she annoyed the judges with her outbursts, so that they could do nothing with her. Wherefore, they, bearing in mind the first reason that we stated in this law, or further seeing that when women lose their decorum, it is very hard to listen to them and to argue with them; and taking warning of the harm that they suffered from the outbursts of Calfurnia, they prohibited that any woman should advocate for someone else.

An edition of the *Siete Partidas* was published twice in Sevilla in 1491 and reprinted in Valencia in 1501. The glossator of these had the interesting name: Doctor Alonso Díaz de Montalvo.[19]

Though romanticists may be sorrowed by the loss of the charm of associating the place-name California with the French epic, and Germanicists may regret its lack of proveable antecedents in the *Sachsenspiegel*, there is much more logic in its association with some of the earliest didactic and juridical literature of Castilla. Here in the basic

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[18] *Las Siete Partidas del Sabio Rey Alonso el Nono, neuvamente glosadas, por el Licenciado Gregorio Lopez, del Consejo Real de Indias de su Magestad* (Valladolid, 1587). In this citation and others the use, or non-use, of accents has been in conformity with the original document.

[19] A brief summary of the Alfonsine code is in Madaline W. Nichols, "Las Siete Partidas," *California Law Review*, v. 20 (1931–32), pp. 260–85.

code of Spanish law, which might easily become known to a governmental official such as *Regidor* García Ordóñez de Montalvo, we find a woman of non-feminine characteristics. There is no implication of Calfurnia being an Amazon, but she is an intelligent leader among women. Her misbehavior consists of merely being outspoken, brazen and irrational, whereas in the German version her actions become uncouth.

It is certain that Alfonso the Wise was not the instigator of the idea of prohibiting women advocates. As a codifier and interpreter of law, Alfonso borrowed from Justinian Roman law and other sources.[20] The Calfurnia story, as appearing in the Alfonsine code, derives in part from the Roman writer Valerius Maximus.

> Caja (or Gaja) Afrania, wife of senator Licinius Bucio, having a passion for law suits, always pleaded her own causes before the praetor, not because she lacked defenders, but because she was full of impudence. Because she tried the tribunals by shouting or rather by barking, she became the best known example of pettifogging of her sex. Her name became abominable; to characterize moral depravity among women, one says: this is a C. Afrania. She lived in the year in which Caesar became Consul for the second time together with P. Servilius. In talking of such a monster, history should mark the time of her disappearance rather than that of her birth.[21]

It is obvious that the nature of C. Afrania's misbehavior is very close to that of Calfurnia of the *Siete Partidas*. The similarity of name is at least suggestive. Apparently some confusion entered in, whereby the senator's wife was linked with the name of another famous Roman woman, Calpurnia, fourth wife of Julius Caesar. In the latter case it is clear that Calpurnia had no known inclination toward lawsuits. Nonetheless the similarity in name is there.

Granted the similarity between Calfurnia and California, is it possible to explain the change in orthography? By the time of the writing of the *Siete Partidas* the development of Spanish had not clearly distinguished between the "u" and the "o" as they evolved from the Latin

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[20]There is a vague possibility that Alfonso might have acquired the Calfurnia story from German sources. Alfonso's mother was Doña Beatriz of Swabia, daughter of Phillip of Swabia. However, Alfonso's education was supervised by his father. Upon assuming the throne he ruled as Alonso el Nono (or Novena) of Castilla, and as Alonso Diez (the Tenth) of León. Though not credited as being an original thinker, Alfonso was "Wise" because he surrounded his court with men of learning and used them to his advantage.

[21]As quoted in Sokol, "California," *California Historical Society Quarterly*, v. 28 (1949), p. 25.

in interconsonantal postions. By 1500 the Latin "u" had frequently been rendered "o" in Iberian spelling. For all practical purposes Alfonso's outspoken female barrister was "California," and the addition of the vowel "i" between two rather difficult consonants, such as the "l" and "f" create, seems normal.

From what period of Roman history does this tradition regarding female lawyers derive? It would seem that it should date from about the sixth century. Thus, in the approach via Roman law we can perhaps trace Calfurnia of the *Siete Partidas* to such a period.

There exists one more clue to the possible example that Ordóñez had for his Queen Calafia and California. This is the role played by the female ruler, her associates and the griffins. Was there an Amazon tradition readily available to the romancer of Iberia? I believe that this can be answered in the affirmative. The answer comes from pertinent sections of the *Libro de Alexandre* (or Alixandre). In this anonymous work of over 2500 stanzas done in *cuaderna vía,*[22] the Amazon legend was introduced into Spanish literature in the thirteenth century. The work, sometimes ascribed to Gonzalo de Berçeo, tells the story of the life of Alexander the Great. During one of his campaigns, as an interlude in the poem, the Macedonian king is visited by an Amazon queen:

> Alli uieno al rey una rica reyna
> Sennora de la tierra que dizen feminina
> Calectrix le dexioron desque fue pequenina
> non trahe baron solo por melezina.[23]

Translating this with no attempt at rhyme, we find:

> There came to the king a very rich queen,
> ruler of the land said to be one of women.
> Her name was Calectrix, and since she was young
> no man was brought to her except the physician.[24]

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[22] *Cuaderna vía* is a poetic form of four fourteen-syllable lines per stanza. Each line is divided into two equal parts with the accent on the sixth syllable.

[23] A manuscript copy of the *Libro de Alexandre* is in the Biblioteca Nacional of Madrid as MS v-5-no. 10. A second copy, with great variation, is housed in the Bibliothèque Nacionale in Paris, Manuscrit espagnol 488. Both texts have been published by Raymond S. Willis, Jr., *El Libro de Alexandre: Texts of the Paris and Madrid Manuscripts Prepared with an Introduction* (Elliott Monographs, No. 32, 1934).

[24] The Paris version of the manuscript has the following stanza:

> Ally vino al rey vna rica reyna
> señora de la tierra quel disien feminina
> Calestres la dixeron desque fue pequeñina
> non traye vn varon solo por melesina.

This thirteenth century epic poem not only introduces the Queen of the Amazons, but also 300 female warrior companions – all mounted on nimble horses. In their land, to which no name is given, men are not admitted; but three times each year the Amazons go to certain places to have sexual union with their husbands *(maridos)*. If they have a female child, it is kept; but if a male, it is sent to live with the father. Calectrix – or Calestres, in the Paris version of the manuscript – is described in most favorable terms. She is handsome of body, and so beautiful that nothing could be done to improve her. One detail is at complete variance with *Las sergas de Esplandián:* the queen is definitely white *(Blanca era la duena de muy fresca color)*. Calectrix is interested in Alexander the Great for one purpose – to have a child by him. She feels that his services will produce for her a successor of the best possible lineage. But if a boy were to be born, the Amazon queen would send him to Alexander. His favor in the matter granted, Calectrix returns to her land.

There is no suggestion of Calectrix's land being an island; nor does one at this point in the story encounter the famed griffins of the California of *Las sergas*. Furthermore, there is no suggestion of everything being made of gold, though riches are distinctly a characteristic of the queen. In looking further into the Alexandrine tale, however, one finds the griffins appearing in a different connection. Alexander has a fight with these monsters in stanzas 2469 to 2514, which treat the "Wonders of the Orient and the Griffin Tussle."[25]

The similarity of the specific items in both *Las sergas* and the *Libro de Alexandre* is evident. It is easy to believe that García Ordóñez de Montalvo had access to the *Libro de Alexandre*. The romancer of chivalry only altered the tale sufficiently to give his story freshness. Even the first syllable of Calectrix's name is suggestive of California, or Calafia.

In his book concerning the background of the *Libro de Alexandre*, Willis clearly points out that much of the material for the Spanish Alexandrine epic was borrowed liberally from the Latin *Alexandreis* by Gautier de Chatillon.[26] In the *Alexandreis* the warrior queen is Thal-

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[25] Willis, *El Libro de Alexandre*, pp. 426–33.

[26] Raymond S. Willis, Jr., *The Relationship of the Spanish Libro de Alexandre to the Alexandreis of Gautier de Chatillon* (Elliott Monographs, No. 31, 1934), pp. 88–89.

estris; details concerning the Amazons, the description of their beautiful leader, and Alexander's reception of the queen are treated. Apparently some of the other parts – *i.e.*, about half of the detail regarding the Amazon warriors and the story of the griffins – are borrowings from other literary sources. Morel-Fatio, an early French commentator on both the *Alexandreis* and the *Libro de Alexandre*, determined that over one-third of the latter was not based on the *Alexandreis*.[27] In the two matters of interest here, the griffin and Amazon portions, the subject matter comes from the *Historia Alexandri Magni de Preliis*, another account of the romance of Alexander.[28]

In summary, it is apparent that there was much opportunity for the namer of California to have read *Las sergas de Esplandián*. It is also evident that the *Libro de Alexandre* and the *Siete Partidas* of Alfonso X, both landmarks in Spanish literature, should have been available directly or indirectly to the writer of the romance of chivalry. It also seems possible that Ordóñez, having transmitted the Amazon legend with only a little variation, would have given the queen a name somewhat different from that which she possessed in the Alexandrine epic. With Cal- from Calectrix, and with another well-known female of extroverted character available in the Alfonsine code, Calfurnia evidently came to mind. A slight, perhaps even unintentional, adjustment in spelling, the transfer of the personal name to the geographical location of his Amazons, and the easy conversion of the geographical name California to a shortened personal name, Calafia, might well have followed. As a result, if this be true, the name California comes from both the legends of Greece and Rome, by way of known intermediate literary sources, to the pen of an author who was probably the most successful romancer of chivalry. Within Spanish literature Ordóñez had two sources of inspiration available for the concept and name California – the Amazon legend as presented in the *Libro de Alexandre*, and the outspoken female lawyer with the intriguing name of Calfurnia.

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[27] Alfred Morel-Fatio, "Recherches sur le texte et les sources de Libro de Alexandre," *Romania*, v. 4 (1875), pp. 7–90.

[28] Willis, *Relationship of the Libro de Alexandre to the Alexandreis*, p. 94. The *Historia de Preliis* is in Walter W. Skeat, ed., *The Wars of Alexander* (London, 1886). Source of the *Historia de Preliis* is supposed to be Archpriest Leo, who translated the original tale from the Greek into Latin in the tenth century. In the English version the Amazon queen has the name Calistride. *Ibid.*, pp. 214–16.

MANIFEST OPPORTUNITY AND THE GADSDEN PURCHASE*

by
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THE PURCHASE by the United States from the Republic of Mexico of the lands south of the Gila River in Arizona, and a small strip along the southern extremity of New Mexico, should not be viewed as a local or isolated incident in American history. It was rather the final step in a program of aggressive national expansion to which the Democratic party had dedicated itself in the 1840s, and for which the phrase "manifest destiny" had been coined. The Gadsden Treaty of 1853 represented the culmination of the widespread and swelling popular conviction that it was the unmistakable, preordained mission of the American republic to expand over the whole continent. The Gadsden Purchase was directly a result of a major trend in the national psychology of the ante-bellum United States. For this reason, and because manifest *destiny* was actually an expression of men's hopes for manifest *opportunity*, it is desirable to

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review in a brief article the steps which led to the Mexican cession of 1853.[1]

Antecedents of the Gadsden Purchase may be traced in the diplomatic controversies arising out of the Treaty of Guadalupe Hidalgo, which ended the Mexican-American War in 1848. Principal among these was the question of a satisfactory boundary line between the two republics, and implicit in this was the desire of American leaders for a practical railroad route to the Pacific. Other points of dispute and concern were the projection of a route from the Gulf of Mexico to the Pacific across the Isthmus of Tehuantepec, depredations in northern Mexico by Indian raiders from the United States, various claims of American citizens against Mexico, British and French designs on Mexico, and the persistence of political disorders in Mexico, which caused nine changes in the form of government and thirty-nine different administrations from 1822 to 1867. All these problems were accentuated by fundamental differences between the two republics in racial composition, language, religion, political institutions and economic conditions.

By the Treaty of 1848, Mexico was forced to cede to the United States all lands westward from the Upper Rio Grande River – the *Río Bravo,* as Mexicans called it – to the Pacific Coast, and northward from the Gila River to the Oregon country. This domain included the present states of California, Nevada, Utah, the southwestern corner of Wyoming, the western slope of Colorado, the western part of New Mexico, and Arizona north of the Gila River. For these 529,017 square miles of the Far West, the United States paid Mexico $15,000,000 and assumed the claims of American citizens against the Mexican government to the amount of $3,200,000.[2] These terms, in effect, represented

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[1]Various aspects of the Gadsden Purchase have been treated at length by several historians. The basic account is still Paul N. Garber, *The Gadsden Purchase* (Philadelphia: University of Pennsylvania, 1923), a volume which was reprinted in 1959 by Peter Smith, Gloucester, Massachusetts. See also J. Fred Rippy, *The United States and Mexico* (New York, rev. ed. 1931), chs. 6, 7, 8; and Edward S. Wallace, *The Great Reconnaissance* (Boston, 1955), chs. 1–7. For a brief commemorative account, see Russell E. Ewing, "Manifest Destiny at a Price," in *Tucson Daily Citizen* (Gadsden Purchase Supplement), June 26, 1954. For diplomatic correspondence and pertinent documents relating to Mexican-American affairs from 1848 forward, see Hunter Miller ed., *Treaties and Other International Acts of the United States of America* (Washington, 1942), v. 6, pp. 293–437; and William R. Manning ed., *Diplomatic Correspondence of the United States: Inter-American Affairs, 1831–1860,* v. 9 [Mexico, 1848–1860] (Washington, 1937).

[2]For complete text of the Treaty of 1848, see Miller, *Treaties,* v. 6, pp. 207–36.

a compromise between southern expansionists who hoped to take "all of Mexico" and northern abolitionists who opposed annexation of any territory which might be settled by slaveowners.

Article V attempted to define the boundary between the two republics, but failed to do this satisfactorily because only a part of the designated line was a natural boundary – the Rio Grande River. West of El Paso, the line would follow the Gila.[3] Provision was further made in Article VI for a joint agreement relating to the construction of a communication route along the Gila River and the free navigation of the Gulf of California and the Colorado River below its junction with the Gila.[4] The "southern" and "western" boundaries of New Mexico, it was stipulated, would be those laid down in J. D. Disturnell's "Map of the United Mexican States," published in New York in 1847. But, in order to eliminate vagueness and to "establish on the ground" a series of landmarks which "shall show the limits of the two republics," each government agreed to abide by the decisions of a joint boundary commission which was to meet at San Diego and "proceed to run and mark the said boundary in its whole course to the Rio Bravo."

On January 16, 1849, President Polk appointed John B. Weller of California as the American commissioner, with Andrew B. Gray of Texas as surveyor, Major William B. Emory as astronomer, and John C. Cremony as interpreter. As soon as the Whig administration of President Taylor came to power, however, Weller's appointment was cancelled and the noted soldier-explorer, John C. Frémont, named in his stead. But Frémont preferred to run for the Senate, and thus it was

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[3]Article V stated: "The boundary line . . . shall commence in the Gulf of Mexico, opposite the mouth of the Rio Grande; thence up the middle of that river to the point where it strikes the southern boundary of New Mexico (which runs north of the town called Paso); thence westwardly along the whole southern boundary of New Mexico . . . to its western termination; thence northward along the western line of New Mexico until it intersects the first branch of the Rio Gila; thence down the middle of said river until it empties into the Rio Colorado; thence across the Rio Colorado, following the division line between Upper and Lower California, to the Pacific Ocean." *Ibid.*, pp. 213–14.

[4]Article VI specified: "The vessels and the citizens of the United States shall, in all times, have a free and uninterrupted passage by the Gulf of California, and by the River Colorado below its junction with the Gila. . . . If by the examination which may be made, it should be ascertained to be practicable and advantageous to construct a road, canal, or railway, which should in whole or in part run upon the river Gila, or upon its right bank or its left bank, within the space of one marine league from the margin of the river, the Governments of both Republics will form an agreement regarding its construction, in order that it may serve equally for the use and advantage of both countries." *Ibid.*, p. 216.

Weller who met the Mexican commissioner, General Pedro G. Condé, and his surveyor-astronomer, José Salazar, at San Diego early in July, 1849. After deciding upon a point of departure on the coast and locating and marking the junction of the Gila and the Colorado below Yuma, Weller and General Condé surveyed a straight line between these two points. Adjourning on February 15, 1850, the commissioners agreed to meet in El Paso on the first Monday of the following November to fix the boundary eastward from the Rio Grande to Yuma.

Weller was now formally dismissed, and John Russell Bartlett was installed as the American commissioner on June 19, 1850.[5] At El Paso in December a controversy arose between Condé and Bartlett over the southern and western boundaries of New Mexico as shown on Disturnell's map. These lines now proved to be inaccurate, and no mention of latitude and longitude was to be found in the Treaty of Guadalupe Hidalgo. Disturnell's map placed El Paso at 32 degrees and 15 minutes, but actually it was located at 31 degrees and 45 minutes. This error of half a degree showed El Paso thirty-four miles too far north. According to Disturnell's map, the southern boundary of New Mexico ran westward three degrees (175 miles) from a point seven minutes (eight miles) north of El Paso. The map showed this line at 32 degrees and 22 minutes, but actually it was at 31 degrees and 52 minutes. Moreover, both El Paso and the Rio Grande were located two degrees farther west on Disturnell's map than they proved to be.

Condé insisted that a point of departure for the southern boundary of New Mexico should be fixed on the actual location of the Rio Grande — but at 32 degrees and 22 minutes as it appeared on Disturnell's map — and that the length of the boundary should be determined by subtracting from the 175 miles the distance between the Rio Grande as actually located and as it appeared on the map. The resulting difference of two degrees would reduce the length of the boundary by fully one-third. Bartlett dissented, contending that the map should be corrected to conform to the latitude and longitude determined by the survey.

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[5]Bartlett was not a topographical engineer. A staunch New England Whig, and an accomplished ethnologist, archaeologist and bibliographer, he had secured a political appointment. See Clarence C. Brigham, "John Russell Bartlett," *Dictionary of American Biography*, v. 2 (New York, 1929), pp. 7–8. For a full account of his activities as commissioner, see Wallace, *The Great Reconnaissance*, pp. 3–92.

A compromise was finally reached: the southern boundary of New Mexico was to extend three degrees (175 miles) west of the Rio Grande as the river was actually situated, but the line was to run at 32 degrees and 22 minutes as it was shown on Disturnell's map. Bartlett justified the compromise by asserting that the land surrendered south of 32 degrees and 22 minutes was of little value, while the territory gained to the west would prove rich in copper, silver and gold.[6]

The Bartlett-Condé agreement, concluded on December 25, 1850, did not receive the endorsement of the American surveyor, Gray, when he arrived on the scene six months later. He insisted that the actual line – at 31 degrees and 52 minutes – fulfilled the intent of the Treaty of Guadalupe Hidalgo, and should not be abandoned. Gray made an issue of this in a letter to Bartlett in July, 1851:

> If we wish to get the true latitude of this line we must do so by computing it from the true latitude of El Paso – an actual place existing upon the ground and likewise mentioned in the treaty [of Guadalupe Hidalgo]. The distance from the town to the point where the Rio Grande strikes the southern boundary of New Mexico is a little over eight miles, as measured by the scale drawn upon Disturnell's map, and which map we are compelled to be governed by, right or wrong.... Admitting El Paso to be wrong with reference to *these* parallels of latitude, as it is a natural "thing" appearing upon the ground as well as upon the map, we can ascertain its true latitude by observation. It will be found that the parallel of 31°45′ North passes through it. Now the southern boundary of New Mexico actually measures only eight miles, or thereabouts, north of El Paso by Disturnell's map; and this distance being turned into minutes and seconds of latitude (7 minutes very. nearly)... places the line in 31°52′ very nearly. Hence it cannot be in latitude 32°22′ as proposed by General Condé.[7]

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[6]Garber, *The Gadsden Purchase*, pp. 12–14. Disturnell printed at least 24 editions of the map of Mexico, seven of them in New York in 1847. The seventh edition was the treaty map of 1847. It was used in the Department of the Interior from March 1848 to December 30, 1853. There are four copies of this map in existence. They are in the Department of State in the Library of Congress, the Boston Public Library, the Library of the Wisconsin Historical Society and the collection of George Griggs in Mesilla, New Mexico. See Miller, *Treaties*, v. 6, pp. 346–51.

[7]"Report of the Secretary of the Interior . . . in relation to the commission appointed to run the boundary between the United States and Mexico," *Senate Executive Document* No. 119, 32 Cong., 1 Sess., p. 281. The validity of Gray's report on the boundary line is further confirmed by Bartlett's own *Personal Narrative of Explorations and Incidents in Texas, California, Sonora and Chihuahua* (2 vols., New York, 1854). This contains a "General Map" showing the countries explored and surveyed by the United States and Boundary Commission. On this map appears a dotted line labelled "Commission's Boundary Parallel 32° 22′," and below it a parallel dotted line labelled Gray's Line 31° 52′." Bartlett's writings became a valuable source of information for travelers and scientists in the Southwest in following decades.

Replying to Gray's letter, Bartlett declared that he was satisfied with his own decision in the boundary controversy. When Gray contended further that no agreement could be made by Bartlett alone, the commissioner reported Gray's truculence to the Secretary of the Interior, Alexander H. Stuart, who wrote Gray requesting him to sign the Bartlett-Condé compromise – and then promptly relieved Gray of his duties.[8] Bartlett's troubles were only beginning, however, for the compromise was approved by neither Lieutenant Amiel W. Whipple – who had acted as surveyor until Gray arrived – nor by Gray's successor, Major Emory.[9] Both Whipple and Emory were West Pointers and members of the United States Corps of Topographical Engineers, and they filed complaints with the Secretary of War. In March, 1852, a resolution was introduced in Congress by Senator John B. Weller of California, Polk's original appointee to the position which Bartlett now held. Weller called for investigation of various charges which had been lodged against Bartlett for negligence, delay, and diversion of public funds to personal use on numerous and extended junkets into Mexico and California. In May, 1852, Congress appropriated an additional $80,000 for the work of the American delegation – but with the proviso that these funds should not be available until the initial point of the survey on the Rio Grande had been established in accordance with the intent of the Treaty of 1848. Bartlett was subsequently dismissed, and Major Emory was ordered to assemble a party of topographical engineers, scientists, and artists to complete the survey.[10]

The Bartlett-Condé compromise involved the surrender of 5,950 square miles of territory to Mexico. This had two grave results. It signified, first, the loss of the only natural and practicable route for railroad

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[8] Wallace, *The Great Reconnaissance*, pp. 39–40.

[9] Wallace gives this interesting summary: "When Major Emory arrived at El Paso to succeed Gray as surveyor, Bartlett had spent about five hundred thousand dollars on a commission which was cluttered with idle, useless people. . . . Many of the men were unpaid and in a state of mutiny while Commissioner Bartlett was off visiting Chihuahua, Sonora, and the geysers of California. Everybody was feuding with everybody else; and not one cent of funds was available. Of the five hundred thousand already spent by Bartlett, Emory estimated that not more than a hundred thousand had gone into actual surveying work. The rest had been frittered away on a useless multitude of officers, quartermasters, commissaries, paymasters, agents, secretaries, sub-secretaries and whatnots." *Ibid.* p. 95.

[10] *Ibid.*, pp. 96–100.

construction through the mountains of the Far West to the Pacific. In his instructions to Bartlett, the Secretary of the Interior had emphasized that the acquisition of a transcontinental railroad route was of "more than incidental importance," and Gray and Major Emory had argued that the surrendered land was valuable for this very reason.[11] The second result of Bartlett's compromise was the exclusion of Americans from a large area already regarded by the United States government as a part of the recently established Territory of New Mexico. Of this land, all but a narrow strip along the Rio Grande was considered barren and worthless; but this strip, the Mesilla Valley, was known to be fertile and already was settled by some 3,000 Americans.[12] The Bartlett-Condé agreement now gave the Mexican government a pretext for asserting a claim to the Mesilla Valley, and the governors of Chihuahua and the Territory of New Mexico were soon in hot dispute. Threats of military action were exchanged, and some Eastern papers took up the controversy. There was considerable speculation regarding the course that the mercurial Mexican president, Santa Anna, might take — and it was reported erroneously that the United States Army had 10,000 troopers on the Rio Grande.[13]

The Whig administration of President Fillmore failed to take a positive stand, and through 1852 the Mexicans persisted in their claim to the Mesilla Valley. Once the Democratic party was returned to power in March, 1853, however, President Pierce flatly denounced the claim. Determined to avoid conflict and anxious to adjust all differences, Pierce appointed James Gadsden of South Carolina as minister to Mexico. A new boundary line which would give the United States a satisfactory route for a railroad to the Pacific was to be the first item on Gadsden's agenda, and the basis of all negotiations with Santa Anna's government.

The idea of a transcontinental railroad had taken definite form as early as 1845, when Asa Whitney memorialized Congress for the construction of track over the northern Plains and Rockies to the Pacific

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[11] Garber, *The Gadsden Purchase*, pp. 22–23.

[12] Rippy, *The United States and Mexico*, p. 115.

[13] *Ibid*, pp. 116–25.

Coast.[14] Whitney's proposal was immediately countered by Gadsden, then president of the Louisville, Charleston, & Cincinnati Railroad, who recommended at a commercial convention in Memphis the same year that track be laid through Texas and along the Gila River to the Coast. After the discovery of gold in California in 1848, the idea of a "central" route across Utah and Nevada gained some favor. But sectional rivalry in Congress soon became so intense that no agreement could be reached, and now there was considerable discussion of the possibility of a land-bridge to connect the Atlantic and the Pacific at Panama, Nicaragua, or Tehuantepec.[15] Clearly, however, the only natural route to the Pacific lay in the depression of the Gila,[16] and James Gadsden remained a strong advocate of a "southern" transcontinental route. Gadsden's appointment as minister to Mexico, therefore, suggested the influence of the Secretary of War in the Pierce administration, Jefferson Davis of Mississippi, who was dissatisfied with the territorial acquisitions of 1848 and hoped for a mountain-and-desert boundary far south of the Rio Grande.[17]

On August 4, 1853, Gadsden arrived in Mexico City. According to his instructions from Secretary of State William L. Marcy, he was to negotiate for a new boundary which would give the United States

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[14] For a brief review of the origin and growth of the Pacific railway idea, see Lewis H. Haney, *A Congressional History of Railways in the United States to 1850* (Madison: University of Wisconsin, 1908), ch. 21.

[15] *Ibid.*, ch. 20. This gives a review of the isthmian transportation projects with special reference to railways. It was believed at the time that an isthmian railway would fill a rapidly growing need and stimulate commerce until a canal became a necessity. The close connection between these isthmian railway projects and the movement for railways to the Pacific within the United States should be noted. The first railroad connecting the two oceans was the Panama Railway, which opened for traffic in 1855; but before that project was conceived, great plans for a transcontinental railway had been evolved.

[16] Regarding the Gila route, Ellen Churchill Semple, *American History and its Geographic Conditions* (Boston, 1904), p. 196, observes: "This is the shortest route across the continent from St. Louis. The marked southeastward bend of the California coast from Cape Mendocino brings San Diego five degrees [approximately 275 miles] farther east than San Francisco . . . . [The Gila] possessed a strategic value as a natural passway through the mountains and desert to the west, and therefore its control could not be shared by another power . . . . It was the natural route to the Pacific from the coast of Texas, where the highway of the Gulf landed a westbound traveler a hundred miles farther on his way than a Missouri steamboat which put him ashore at Kansas City."

[17] It is significant that Gadsden, while in Mexico, carried on a correspondence with Davis. See J. Fred Rippy, "James Gadsden," *Dictionary of American Biography*, v. 7 (New York, 1931), pp. 83–84.

enough land for a practical route to the Pacific; to obtain a release from Article XI of the Treaty of 1848, by which the United States had agreed to protect Mexican citizens from Indian depredations and to indemnify them for violations against persons and property; and to secure a settlement of claims on the governments of the two republics by the citizens of each.[18] For such an accommodation the United States "would be willing to pay liberally." If the Mexican government was disposed to treat for a new boundary line, Gadsden was instructed further "not to press a discussion of our claim – after having clearly stated it – for the disputed territory. It is probably the most expedient way of disposing of that question, to let it be merged in the negotiation for an alteration of the boundary."[19]

Gadsden held his first conference with President Santa Anna on August 17 and then presented his proposals to the Minister of Foreign Affairs, Manuel Diaz de Bonilla. In a dispatch to Washington on September 5, Gadsden gave his impressions of the political situation in Mexico – the depletion of the Mexican treasury, the treachery of Santa Anna, and the dictator's dependence on money to maintain himself in power.[20] The need for money, said Gadsden, was "the only consideration on his part to conclude a negotiation on any terms involving a sale of territory."[21] Gadsden believed that a treaty reconciling all differences between the two republics could be negotiated. "But," he added, "they must be paid for. This is a government of plunder and necessity."[22]

In October President Pierce sent C. L. Ward as a special messenger to Mexico City with secret instructions which he memorized and repeated to Gadsden. Five possibilities were suggested for the boundary line that was to be the center and the heart of the negotiation. The first proposed a natural mountain-and-desert barrier which would involve the cession to the United States of large parts of the provinces of Tamaulipas, Nuevo Leon, Coahuila, Chihuahua, Sonora, and all of

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[18] Marcy's instructions of July 15, 1853, appear in Miller, *Treaties*, v. 6, pp. 342–47. Excerpts are in Manning, *Diplomatic Correspondence*, v. 9, pp. 607–609, 616–21.

[19] Miller, *Treaties*, v. 6, p. 346.

[20] *Ibid.*, pp. 349–53.

[21] *Ibid.*, pp. 351–52.

[22] Quoted in Garber, *The Gadsden Purchase*, p. 89.

Lower California – an area of approximately 120,000 square miles, for which Gadsden was authorized to offer $50 million. This was the boundary preferred by President Pierce, and the one recommended by Secretary of War Davis and by the commander of American forces on the border, General P. F. Smith.

The second line did not enter so far south, nor did it include Lower California; it involved an area of about 50,000 square miles, for which $35 million could be paid. The third line was yet farther north, but did include Lower California; it covered an estimated area of 68,000 square miles, and the offer was to be $30 million. The fourth possible line was to be the same as the third, with the exclusion of Lower California; the area here was estimated at 18,000 square miles, for which $20 million would be offered. The fifth and northernmost line was along the parallel of 31 degrees and 48 minutes from the Rio Grande to the Gulf of California; for this an offer of $15 million could be made.[23]

Ward presented a paraphrase of these instructions to Gadsden on November 14, with the addition of four paragraphs of his own in behalf of certain claims against the Mexican government approximating $5 million for alleged violations of rights secured from foreign grantees – the Garay and Sloo grants – for a right-of-way across the Isthmus of Tehuantepec.[24] In these claims Ward had a personal interest. This became a sore trial for Gadsden and led to an unofficial interview between the minister and Santa Anna on the question of the two grants.[25] While Gadsden was committed by his original instructions to negotiate a treaty embracing *all* differences between the two republics, Secretary Marcy had made no specific mention of the Garay grant. Still a settlement of some kind was clearly in order, but it was the demand of $5 million "to satisfy the cormorant appetite of Ward and Company" that distressed Gadsden. The treaty which he concluded with Santa Anna did allocate this amount for American claims, and included express mention of the Garay grant – but this was omitted

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[23] Miller, *Treaties*, v. 6, pp. 361–62.

[24] *Ibid.*, pp. 364–66.

[25] *Ibid.*, pp. 367–69.

in the final text. Gadsden later complained bitterly of Ward's designs and actions.[26]

To secure the funds that he needed to maintain himself in power, Santa Anna was compelled to consider a new treaty with the United States which would involve the sale of territory. His view of conditions in 1853 was gloomy and desperate: fortresses dismantled, frontiers abandoned, treasury empty, credit exhausted, and the army disorganized and poorly equipped.[27] There was no hope of British or French assistance in the event of another war with the United States, and such a war would mean Santa Anna's downfall. The dictator's dilemma encouraged Gadsden to ask for the southernmost boundary; but after a lengthy conference in late November, Santa Anna announced that he would not negotiate except on the basis of a northernmost line which would allow the United States only enough territory for a route to the Pacific. Accordingly he appointed a committee of plenipotentiaries – composed of the Minister of Foreign Affairs, Manuel Diaz de Bonilla, and two engineers – to deal with Gadsden on this basis.

Anticipating a formal notification to this effect, Gadsden on November 29 sent a long note to Bonilla, part of which he styled "a chapter from President Monroe's Manifesto."[28] In this note Gadsden accepted the idea of a northernmost line, but declared that "no treaty on these limits can prove other than a temporary expedient to reconcile existing differences."[29] Gadsden's note was deemed very offensive and it went unanswered. It was described by Bonilla, in a letter to the Mexican minister in Washington, as "nothing more than an insult to this government, to this nation, and to the whole Spanish race."[30] Gadsden predicted that the absorption of a large part of northern Mexico – "a repetition of Texas history in the six border states" – would be the inevitable result of the march of the age; that European meddling and Mexican appeals to Europe for support would serve only to hasten

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[26] *Ibid.*, pp. 369–70.

[27] Rippy, *The United States and Mexico*, p. 105.

[28] Miller, *Treaties*, v. 6, pp. 370–74.

[29] *Ibid.*, p. 372.

[30] *Ibid.*, p. 374.

the march; and that it would therefore be well for Mexico to anticipate this eventuality by the prompt sale of the territory in question. Thus, Gadsden suggested, a "natural territorial boundary . . . [of] Mountain and Desert outlines" could be secured; further desires for expansion on the part of the United States would be checked; provocation of border feuds would be removed; and the problem of protecting peoples who chose to be transferred to the jurisdiction of either nation would be solved.[31]

In six conferences with the Mexican plenipotentiaries between the 10th and 25th of December, Gadsden continued to press for the southernmost line favored by President Pierce.[32] Santa Anna's reaction was to accuse the United States government of threats and intimidations during the course of a diplomatic negotiation. He charged American officials on two counts: the effective occupation of the territory in dispute, and the concentration of troops on the Rio Grande for the purpose of frightening the government of Mexico into a cession of territory to the United States.[33] Santa Anna's first charge was not supported by the facts; there was no apparent intention on the part of the Pierce administration to occupy the disputed territory during the negotiation. In his instructions to Gadsden, Secretary Marcy had said:

> While this dispute . . . remains unadjusted it is expected that each party will abstain from taking possession of the districts in question or doing any act which indicates an exclusive appropriation thereof. . . . The late Governor of New Mexico, it seems, entertained an intention of taking actual possession of it and so announced his purpose in a proclamation; but at the same time he declared that he was acting without instructions from his government. His intention was never executed, his purpose was disapproved, and Mexico was distinctly apprised that the United States will abstain from taking possession of the disputed territory in the belief that the difficulty will be settled by negotiation; and this government expects that Mexico will on her part take the same course. Should she, however, contrary to our reasonable expectations, have acted otherwise, you will urge upon her the propriety and

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[31] *Ibid.*, 371–73. Rippy characterizes Gadsden's note of November 29 as "a paean to a type of manifest destiny very closely allied to a concept of geographical predetermination . . . to usher in the millennium in North America." *The United States and Mexico*, pp. 141–42.

[32] For Gadsden's notes on these conferences, see Miller, *Treaties*, v. 6, pp. 381–86.

[33] Rippy, *The United States and Mexico*, pp. 143–47.

> reasonableness of the proposition. . . . Our proposition is that the district in question should be left precisely in the situation it was when the dispute first arose, until all efforts to adjust it shall have been exhausted. I cannot doubt Mexico will conform to this suggestion.[34]

As to Santa Anna's second charge, the archives of the Department of War in Washington have failed to yield documents indicating the presence of an American military force in the disputed territory during Gadsden's months of negotiation. Further, the charge that the United States government was concentrating troops on the southwestern border to intimidate Mexico into ceding territory is countered by the fact that frontier conditions at this moment required the full services of the small regular army. In the lands acquired from Mexico in 1848 there were 160,000 to 180,000 Indians – Apaches and Navajos, Comanches and Kiowas, Utes and Yumas – and most of them wild. The American government had assumed the threefold responsibility of preserving peace among the tribes, protecting its citizens from their attacks, and preventing Indian raids into the northern states of Mexico. In addition, United States officials and military commanders had the problem of preventing Anglo-American filibustering expeditions into Mexico. It is true that troops on the southwestern frontier were gradually increased after 1848 until there were some 4,100 soldiers at stations in Texas, New Mexico, and Arizona; but there were never more than 180 mounted men close to the border at any one time and not more than 600 during the whole period. Prior to 1854 there were no mounted troops anywhere along the Rio Grande from El Paso to Brownsville. The mobilization of troops in Texas and in the Territory of New Mexico did not necessarily imply, therefore, that the United States government meant to take military action if Gadsden's negotiation failed to secure the disputed area.[35]

Negotiations in Mexico City finally came to a close on December 30, 1853, when a "Treaty of Boundary and Cession of Territory" was signed by Gadsden and the Mexican plenipotentiaries. As spelled out, the new international line would run from Yuma down the middle of the Colorado River to a point six miles above the head of the Gulf of

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[34] Miller, *Treaties*, v. 6, p. 345.

[35] Rippy, *The United States and Mexico*, pp. 143–47. For Mexican grievances, 1848–1853, see *Ibid.*, ch. 4: *"The Indian Problem;"* and ch. 5: "Filbuster Raids."

California – a distance of seventy miles – and from here eastward to the intersection of the 31st degree of latitude with the 11th degree of longitude, and thence to the intersection of the parallel of 31 degrees, 47 minutes, and 30 seconds with the Rio Grande at a point eight miles north of El Paso. In exchange for the territory acquired by this provision of the treaty, a payment of $15 million was stipulated. Article XI of the Treaty of 1848 was abrogated, thus releasing the United States from all claims of Mexican citizens under this article. For this concession, the United States assumed the claims of Americans against Mexico in the amount of $5 million. Free navigation of the Gulf of California and the Colorado River was guaranteed to the United States. Ratifications of the treaty were to be exchanged by the two governments within six months.[36]

When the contents of the treaty became known in the United States, it immediately became the subject of debate on both sectional and party lines. Northern newspapers, with the notable exception of the *New York Times,* criticized the treaty; southern newspapers, with few exceptions, commended it. Some denounced Secretary of War Jefferson Davis as the master mind behind the whole negotiations. Others praised Gadsden for having secured territory for the shortest and most practical route to the Pacific Coast. The *Times* advised the acceptance of the treaty, warning that unless it was ratified England and France would secure the Isthmus of Tehuantepec for a connection between the Atlantic and the Pacific. Such a connection, it declared, "would cost us our Pacific Coast possessions if we should get into a war with either of these countries."[37] President Pierce, who had wanted much more than Gadsden had obtained, thought at first of rejecting the treaty. But when Davis and Secretary of State Marcy, realizing that Gadsden had done all that he could under the circumstances, advised that the treaty be submitted to the Senate, the President sent it forward with suggestions for several changes.[38]

The Senate received the Gadsden Treaty on February 10, 1854 – a most untimely moment for the reason that the slavery question was now the dominant issue before the nation in the form of the Kansas-

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[36] For the complete text of the treaty, see Miller, *Treaties,* v. 6, pp. 318–22.

[37] Garber, *The Gadsden Purchase,* pp. 109–15.

[38] *Ibid.,* p. 116.

Nebraska Bill. This famous bill, introduced by Senator Douglas of Illinois, was violently opposed by northerners who professed to see in it only a design to secure more slave territory – and a southern railroad to the Pacific. It was certain, therefore, that northern senators who were suspicious of the Kansas-Nebraska Bill would also oppose the Gadsden Treaty; and promptly such formidable figures as Seward of New York, Sumner of Massachusetts, and Chase and Wade of Ohio took up the fight against it.[39] The first article, describing the new boundary, occasioned the greatest debate because five amendments to relocate the line farther south were proposed. The amendment offered by Shields of Illinois was the most extravagant; he suggested that the boundary run down the middle of the Gulf of California to the 31st parallel before turning eastward. Such a boundary would have secured a port on the Gulf as well as large parts of Sonora and Chihuahua. But all these expansionist amendments were defeated, and one to reduce the area of the Purchase by moving the line northward – submitted by Mason of Virginia – was finally adopted.[40] Other obstacles to ratification were evident in the demand of extreme southerners for enough territory to make a slave state to balance the free state of California, and in the determination of land speculators to involve the United States government in their claims to rights secured from foreign grantees for the construction of a canal across the Isthmus of Tehuantepec. Some opposed the treaty because it would provide Santa Anna with funds to maintain himself in power. Houston of Texas opposed it because of his personal hostility to Gadsden. When the vote on the amended treaty was taken on April 17, it was defeated by a count of 27 to 18. An article

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[39] *Ibid.*, pp. 117–36.

[40] Miller, *Treaties*, v. 6, pp. 330–32.

[41] The article supporting American land speculators in their claims to rights secured from foreign grantees for the construction of a canal across the Isthmus of Tehuantepec, which was added as an amendment to insure reconsideration of the treaty and its final ratification, is of particular interest in relation to the idea of a transcontinental route connecting the Atlantic with the Pacific Ocean: "The Mexican government having on the 5th of February, 1853, authorized the construction of a plank and railroad across the Isthmus of Tehuantepec, and to secure stable benefits of said transit way to the persons and merchandise of the citizens of Mexico and the United States, it is stipulated that neither government will interpose any obstacle to the transit of persons and merchandise of both nations; and at no time shall higher charges be made on the persons and property of foreign nations, nor shall any interest in said transit way, nor in the proceeds thereof, be transferred to any foreign government." Quoted in Garber, *The Gadsden Purchase*, pp. 137–38.

supporting speculators in their claims to rights for the construction of a canal across the Isthmus of Tehuantepec was then adopted to insure reconsideration of the treaty,[41] and the Senate finally consented to ratification on April 25, 1854, by a vote of 33 to 28.[42]

The treaty which Gadsden had signed in Mexico City four months earlier was greatly changed in its essential features by the Senate amendments.[43] First, the revised boundary reduced the territorial cession negotiated by Gadsden by about 9,000 square miles. From a point at the intersection of the parallel of 31 degrees and 47 minutes with the Rio Grande River, this line extends due west 100 miles; thence south to the parallel of 31 degrees and 20 minutes; thence along this parallel to the 111th degree of longitude; thence northward by a straight line to a point on the Colorado River twenty miles below the junction of the Gila and Colorado rivers; thence, up the middle of the Colorado River to its intersection with the treaty line of 1848 between Upper and Lower California.[44] Provision was made for the appointment of one commissioner by each government for the execution of the new line. Other provisions of the amended treaty specified that the purchase price of the territory ceded to the United States be reduced from $15 million to $10 million; and that in regard to the reciprocal release of all claims and the payment of American claims against Mexico by the United States to the extent of $5 million as provided in the original treaty, a clause be included to abrogate Article XI of the Treaty of 1848,

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[42] The final Senate vote on the treaty does not show an alignment on a strictly sectional basis. Its rejection on April 17 was affected by a combination of 15 southern and 17 northern Senators; one southern and 12 northern Senators opposed to rejection. It was then ratified on April 25 by a combination of 14 northern and 17 southern Senators and opposed by 12 northern Senators. No southern Senators voted against it. The majority of the Senators from Missouri, Iowa, Illinois, Indiana, and Wisconsin voted in favor of the treaty, thus indicating that Benton's project for a central route for a railway to the Pacific had little influence on them. See Rippy, *The United States and Mexico*, p. 166.

[43] For the amended treaty, see Miller, *Treaties*, v. 6, pp. 293–302.

[44] The boundary secured by Gadsden in the original treaty would have given the United States the east bank of the Colorado River from the confluence with the Gila River to a point six miles above the most northern point of the Gulf of California on the Colorado River, equal control with Mexico of the Lower Colorado, and an outlet for a port at its mouth. The extension due west of the present southern boundary, the parallel of 31 degrees and 20 minutes, which runs through Douglas and Nogales, as defined in the amended treaty, would have assured an outlet for a port on the Gulf of California.

thereby extinguishing all Mexican claims against the United States under this article but leaving all claims against Mexico intact.

Gadsden was so dissatisfied with the Senate's action in amending the treaty that he returned to Mexico with the hope that it would be disavowed there. He objected particularly to the protection given by Article VIII to speculators in the Tehuantepec project;[45] and he was exasperated that Article I, which changed the boundary line, had reduced the area of the territory acquired from Mexico. He advised Secretary Marcy on May 21 to break off negotiations with Santa Anna and treat with his successor; but Marcy informed Gadsden that President Pierce had agreed to the treaty simply because there was no assurance that a better, or even any, treaty could be secured if this one were rejected. In a mild note to Bonilla on June 6, therefore, Gadsden urged Mexico's acceptance of the amended treaty on the ground that it adjusted the most serious difficulties between the two republics and also for the reason that a new treaty would not receive the approval of the United State Senate.[46] But Santa Anna was in no position to reject the treaty. He needed money immediately to equip an army and sustain himself in power; otherwise his overthrow was imminent. Immediate ratification could sustain him for a time. What attitude would the United States take if the treaty were rejected? Juan N. Almonte, the Mexican minister to Washington, predicted that its rejection would probably mean war.[47] Santa Anna, therefore, accepted the amended treaty without change on May 31, 1854.

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[45] This amendment by the Senate caused the British minister to Mexico, Percy Doyle, to oppose ratification of the treaty by the Mexican government. He feared that it would jeopardize British isthmian plans; but the Foreign Secretary, Lord Clarendon, did not choose to intervene. See Garber, *The Gadsden Purchase*, pp. 137–38. This article was terminated by a treaty negotiated and ratified at Washington in 1937. In his message submitting the treaty to the Senate, President Roosevelt said: "This article of the Treaty of 1853, while of potential value at the time it was negotiated, has never operated and has no present-day use, since the work contemplated was undertaken and completed by Mexico without the assistance of the United States, and transportation between the eastern and western parts of the United States is now better served by transcontinental means of the United States by the Panama Canal than can be served across the Isthmus of Tehuantepec to which the right was granted by Article VIII of the Gadsden Treaty." See Miller, *Treaties*, v. 6, p. 432.

[46] Miller, *Treaties*, v. 6, pp. 338–39.

[47] Garber, *The Gadsden Purchase*, p. 139.

Three weeks later the Gadsden Treaty was received in the House of Representatives and referred immediately to the Ways and Means Committee, where a bill was drafted for appropriation of the funds necessary to carry out its terms. But here again the treaty was destined to run the gauntlet of debate on sectional and party lines.[48] Thomas Hart Benton, senator from Missouri from 1820 to 1850 and now a revered member of the House, led the opposition. He complained that the administration had not consulted the House on the negotiations, and declared that the acquisition of additional territory for a railroad route to the Pacific was not really necessary. There were good routes already available, Benton said, along the 34th, 35th, 38th, or 39th parallels; and if this new route were desirable, it could have been purchased for much less — because the ceded territory was "so desolate, desert, and God-forsaken" that, as Kit Carson had said, "a wolf could not make a living on it." Bayly of Virginia spoke at length in reply, declaring that Benton's real motive in opposing the cession was the fear that it would interfere with his own pet project for a central route to the Pacific. On June 29 the House passed the appropriation by a vote of 103 to 62.[49] President Pierce, still dissatisfied with the limits of the cession but doubtful that a second treaty could be negotiated with Santa Anna and then approved by the Senate, ratified the Gadsden Purchase that same day.[50]

On August 4, 1854, Major Emory was appointed American commissioner for the final survey and demarcation of the boundary line; the Mexican commissioner was José Salazar, who had been the official surveyor under the late General Condé. There was excellent cooperation

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[48] *Ibid.*, pp. 140–45.

[49] The House vote appropriating the funds for carrying out the provisions of the treaty recorded the votes of 46 northerners and 57 southerners in favor of the bill, and 56 northern and 6 southern votes against it. This might be interpreted to mean that there was a marked sectional bias, except for the fact that the affirmative vote was cast by 93 Democrats and 10 Whigs; the negative vote by 14 Democrats and 45 Whigs, every southern vote against the bill being a Whig and every northern vote for it, with one exception, being a Democrat. See Rippy, *The United States and Mexico*, pp. 166–67.

[50] Garber, *The Gadsden Purchase*, pp. 135–36. Mexican-American problems of the period were only partially solved in the Pierce administration. For a discussion of subsequent negotiations, see James M. Callahan, "The Mexican Policy of Southern Leaders under Buchanan's Administration," *Annual Report of the American Historical Association for 1909* (Washington, 1910), pp. 135–51.

between the new commissioners, and there were no junkets on this survey. On December 18, 1855, Major Emory was able to report to the Secretary of the Interior that the task was completed. [51] But the construction of railroad track through "Gadsden's Strip," and the fulfillment of those hopes of manifest opportunity which had prompted the Purchase, were to be long delayed by sectional controversy and the War between the States. It was not until the 1870s that the project became a reality with the organization of the Southern Pacific Railroad Company by California's "Big Four" – Leland Stanford, Collis P. Huntington, Mark Hopkins, and Charles Crocker – the same entrepreneurs who had been successful in promoting the first transcontinental line, the Central Pacific-Union Pacific, during the Civil War.

By 1877 the Southern Pacific had extended its track from the coast as far east as Yuma, but at the same time the railhead of Jay Gould's Texas & Pacific was still in Texas. The Southern Pacific now obtained charters to continue its line into Arizona and New Mexico, and Huntington and his associates made an agreement with Gould whereby the two lines were to be joined at El Paso. So it was that the Southern Pacific pushed eastward from Yuma to Casa Grande, Tucson, and Benson in Arizona, to Lordsburg and Deming in New Mexico, and finally to Sierra Blanca, Texas, ninety-two miles beyond El Paso, where in 1882 it met the Texas & Pacific.[52] Thus the second transcontinental railroad was completed. There is little doubt that, but for the War between the States, the first railway to the Pacific Coast would have been built near the 32nd parallel of latitude. "This is the line," so a committee report of 1878 stated, "which public opinion had by 1860 settled upon as the one to be constructed."[53]

The Gadsden Purchase gave the United States more than a route for a southern railroad to the Pacific Coast. Its boundaries encompassed a region of great potential wealth in minerals, grass lands, and fertile

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[51] Miller, *Treaties*, v. 6, p. 301.

[52] Lewis H. Haney, *Congressional History of Railways in the United States, 1850–1887* (Madison; University of Wisconsin, 1906), pp. 122, 127.

[53] *Ibid.*, p. 114.

intermountain valleys.[54] Today it is a land of copper, cattle, and cotton, and of a climate pleasant and healthful the year round. It is a country of scenic beauty, an area rich in archaeological and historical heritage. It is withal the land of manifest opportunity which many Americans envisioned a century ago.

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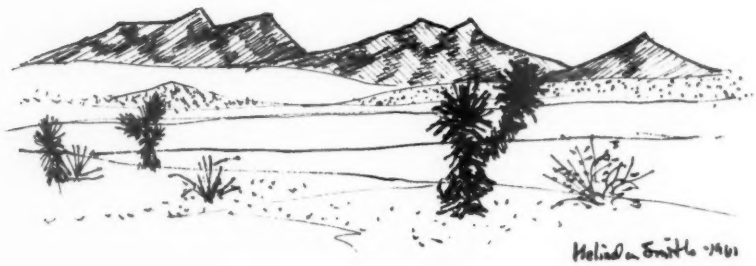
[54] The area of the Gadsden Purchase has been given erroneously in standard works as 45,535 square miles. This figure has appeared not only in the *World Almanac*, Scribner's *Dictionary of American History* (1940), and Harper's *Encyclopedia of American History* (1953), but also in a surprising number of textbooks, historical treatises, and articles. It is nevertheless too large. The origin and basis of this figure have not been determined. An early estimate appears in Thomas Donaldson, *The Public Domain: Its History with Statistics* (Washington, 1884), p. 138: "The territory thus purchased was in area 45,535 square miles or 29,142,000 acres." This appears to have been an uncritical guess.

Geographical reports and government publications give positive evidence on the area of the Gadsden Purchase. Major William H. Emory, in his *Report on the United States and Mexican Boundary Survey* (3 vols., Washington, 1851–1859), v. 1, p. 93, stated: "The territory required under the treaty of December 30, 1853 . . . contains 26,185 square miles." *The Statistical Atlas of the Twelfth Census* (Washington, 1903), p. 25, gives the area as 31,017 square miles. *The Abstract of the Thirteenth Census* (Washington, 1913) p. 28, puts the area at 29,670 square miles; this figure remained practically the same in government statistical publications until 1940, when the area was remeasured and fixed at 29,640 square miles – which the *Statistical Abstract of the United States* has cited since that time. This correction, with supporting evidence, was submitted to the editors of the *World Almanac*, and it appeared in the 1955 issue. It is also to be made in the revisions of the *Dictionary of American History* and the *Encyclopedia of American History*.

A breakdown of the 1912 measurement of 29,670 square miles gives Arizona 27,305 square miles, which comprises 24 per cent of the area of the State, while the remaining area of 2,365 square miles in New Mexico comprises two per cent of the area of that state. No breakdown on the basis of the 1940 measurement of 29,640 square miles has been made. The writer is obligated to Henry J. Dubester, Acting Chief of the General Reference and Bibliography Division of the Library of Congress, who supplied this data in a letter of June 1, 1954.



LIEUTENANTS PERSHING AND STOTSENBERG VISIT THE GRAND CANYON: 1887

edited by
WILLIAM SWILLING WALLACE

MANY OFFICERS of the United States Army who later assumed significant roles in a nation rising to world power received their first military experience during the closing days of Indian hostilities in the West. One such army officer, whose career was cut short during the Spanish-American War, was the author of the narrative presented in the following pages.

John Miller Stotsenberg was a Hoosier from New Albany, Indiana. Born in 1858, he graduated from West Point in 1881, and was commissioned a second lieutenant in the Sixth Cavalry; subsequently he served with that regiment in New Mexico, Arizona, Nebraska, and Virginia.[1] In December, 1897, Stotsenberg, having completed the pre-

[1] *Thirteenth Annual Reunion of the Association of Graduates of the United States Military Academy at West Point, New York, June 7th, 1889* (Saginaw, Michigan, 1899), pp. 162–67. Unless otherwise noted, additional biographical information on Stotsenberg in the following pages is taken from this source. In 1885, two years prior to the time of the narrative, Stotsenberg, a first lieutenant in the Sixth Cavalry, married Mary Gouveneur La Tourrette at Fort Union, New Mexico. His father-in-law, James Armour Moore La Tourrette, was an Episcopal clergyman who served as a post chaplain from 1867 until his retirement in 1890; most of his time was spent at Fort Union. By marriage Stotsenberg became a member of one of the families most represented in the officer corps of the United States Army. See Genevieve La Tourrette, "Fort Union Memories," *New Mexico Historical Review*, v. 26 (October 1951), pp. 277–86. A brief genealogy of the La Tourrette family, compiled by Miss Nina Romeyn, is in the Mrs. Seth W. Cook File, Arrott Collection of Western Americana, Rodgers Library, New Mexico Highlands University. Miss Romeyn is the daughter of another of Chaplain La Tourrette's children, Mrs. Annie Helme Townsend La Tourrette Romeyn, whose husband – a colonel in service on the frontier – received the Congressional Medal of Honor for Indian-fighting. See *The Medal of Honor of the United States Army* (Washington, 1949), p. 231.

scribed course at the Infantry and Cavalry School at Fort Leavenworth, Kansas, reported for duty at the University of Nebraska as Professor of Military Science and Tactics. The following April, at the outbreak of the Spanish-American War, he was appointed the mustering officer for Nebraska, and assisted in organizing that state's first regiment.

With the rank of major he went with the Nebraska regiment to the Philippine Islands. During the siege of Manila, and on the recommendation of Generals Merritt and F. V. Greene, he was brevetted lieutenant colonel for gallant conduct. Shortly after, the colonel resigned and Stotsenberg was promoted to fill the vacancy. On February 5, 1899, Colonel Stotsenberg personally led an attack which resulted in the capture of two enemy block-houses, the San Juan River bridge, a powder magazine, the water works, and the Convent of San Juan del Monte. During this action and that of the following day, he commanded more troops than any brigadier general on the field had handled up to that time. For his success Stotsenberg received the personal congratulations of Generals MacArthur, Hale, and Hughes.

A little more than a month later, newspapers carried the following account of Colonel Stotsenberg's death:

> *Manila, April 23 [1899]* – *9:30* P.M. – In an encounter with the Filipinos today near Quengua, about four miles northeast of Malolos, six Americans were killed and forty-three wounded. . . . The insurgents had a horseshoe trench, about a half mile long, encircling a rice field, on the edge of a wood. Major Bell, with forty cavalrymen, encountered a strong outpost. . . . The Americans retired, carrying their wounded under fire with great difficulty. . . . . Colonel Stotsenberg, who had spent the night with his father at Manila came upon the field. The men immediately recognized him and raised a cheer. Colonel Stotsenberg, deciding to charge as the cheapest way out of the difficulty, led the attack at the head of his regiment. He fell with a bullet in the breast, dying instantly, about 200 yards from the breastworks. . . .[2]

Stotsenberg was buried at the National Cemetery at Arlington, Virginia, on June 1, 1899. His name is perpetuated in the name of the principal United States military establishment in the Philippine Islands – Fort Stotsenberg –located in central Luzon.

Garrison life in the Southwest in the 1880s was not all Indian-fighting. For years at a time, life in a typical army post might consist of

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[2] *Rocky Mountain News* (Denver,) April 24, 1899.

little more than routine drill and record-keeping. Extant records show that the ennui of garrison duty was combated in a variety of ways. Two fairly common forms of recreation were prospecting and exploring. The following narrative concerns the latter; but, as the reader will see, Lieutenant Stotsenberg's account of his trip to the Grand Canyon in 1887 – in the company of Lieutenant John J. Pershing – details anything but a pleasant outing!

Stotsenberg's narrative, written in pencil on yellow-lined tablet paper, is given here in its entirety and without alteration.[3] Throughout he refers to Pershing as "Jackson." The origin of this early nickname for the famous commander of World War I is unknown. Stotsenberg's daughter, Mrs. Jane S. Wainwright, has stated: "General Pershing's nickname was Jack – But why my father usually called him Jackson I asked General Pershing . . . and he did not know why."[4]

The route of the two young officers in 1887, as outlined in Stotsenberg's words, approximates U. S. Highway 66 from Fort Wingate to Gallup, New Mexico, then runs via the Navajo Reservation road through Oraibi to U. S. Highway 89 near Cameron, Arizona, and thence to Arizona State Highway 64 and on to the Grand Canyon.

I

The true and perhaps thrilling experience in the following sketch is not recommended for invalids or even the ordinary sightseer. However, should anyone wish to make a trip where he can obtain the most experience and the most hardship, and see the greatest variety of men, both white and red, let him follow our trail – if he can.

The plans that we made were perhaps not very well matured. Indeed, the Grand Canyon of the Colorado did not enter our heads until we had our party organized and were out several days on a

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[3] The Stotsenberg manuscript first came to my attention through the late James W. Arrott of Sapello, New Mexico. It had been acquired in the course of Mr. Arrott's correspondence with Mrs. Seth W. Cook of Washington, D.C., and Mrs. Jane Stotsenberg Wainwright of Chevy Chase, Maryland. Mrs. Cook reported the existence of the document and Mrs. Wainwright was found to be in possession of it. To Mrs. Cook I am indebted for leading me to the document and supplying background information. I am indebted to Mrs. Wainwright for permission to bring this document into public view. I also wish to acknowledge the cooperation of Sidney Forman, Archivist and Historian of the United States Military Academy, and, that of the Denver Public Library.

[4] Jane Stotsenberg Wainwright to James W. Arrott, May 15, 1956, Arrott Collection.

pleasant trip to the Moqui Villages. Still, between ourselves there had been an understanding that some day we would see this, the grandest view on our continent, if not on earth. But, as intimated already, we were not after all the adventures that we found before we reached home.

Our party, as finally made up, consisted of Lieutenant Jackson, Sixth Cavalry, a packer who bore the significant name of "Minus," and our guide and interpreter, a Navajo Indian, named Sam. Sam was a character. He had been a government scout for many years, and was known to be generally and utterly worthless while in the post. He was devoted to whiskey, faithful when he thought it would serve his purpose, trustworthy when away from civilization and, above all, plausible to a degree. Sam claimed relationship with every Navajo on the reservation. It seemed so to us at least, as he always wanted to make side rides to see some of his relatives. I almost forgot to say that Sam professed to be devoted to me, so with all his failings I generally took him out with me.

Our outfit for the journey of two hundred miles consisted of two strong pack mules which Minus, with our assistance, was to pack and take care of on the march. These two mules were packed as light as possible with our rations and grain so that long marches could be made. We carried one extra blanket on our saddle. Jackson was mounted on a good Navajo pony, and at the first opportunity I purchased a similar mount for myself; that is, similar in everything but *good*. One peculiarity of the average Navajo pony is that he is generally only gentle on the left or near side. The Indians are too lazy to break them thoroughly and, as they always saddle and mount on this side, the pony only learns one point of approach. We were careless about "Spike," my new purchase, at first, but we soon saw that he had this little peculiarity, and after getting kicked or nipped several times, we learned to respect it and act accordingly. Spike was guaranteed by his late owner to be gentle, tough, and sure footed, and though he promised well at first, he was found to lack all of these qualities. Spike's owner was to be our guide beyond the Moqui Villages which were the limit of Sam's information. This Indian was to meet us there and this was one reason I bought the pony. He never kept his promise. The breaking of this promise caused us much trouble and suffering, as the following mishaps show.

There are many points where the tourist can comfortably reach the Grand Canyon. We determined, after consulting with several who had been a long while in the country, not to take the usual route, but to cross the Little Colorado south of the Mormon town of Tuba City, and then travel a little west of south to the point where Lieutenant Casey and a detachment from Fort Lewis had gone into the canyon the previous fall.

Our little party arrived at Keams Canyon, a beautiful spot, where Mr. Keam has kept a trading store for the Navajos and the Moquis for fifteen years. There is also an Indian school there where the two or three lady teachers from "back east," taught the Moqui children how to shout "Hold the Fort" and other difficult and popular Gospel hymns. If the school was not as interesting as the ladies thought, it was certainly a pleasure to see the little brats, when they were released, show their gratitude at regaining their liberty by running up the perpendicular walls of the Canyon like so many goats. Mr. Keam was away, so we felt that we had lost the last means of obtaining reliable information. He had traveled our proposed route and, besides, had enough influence among the Moquis to get us a good guide.

We left the Canyon on a bright Sunday morning in the latter part of June. Soon we were among the sandy Moqui gardens and farms. The snow-clad San Francisco Mountains stood out grandly in the distance a hundred miles to the southwest, a magnificent landmark for our journey for the next two days. It was surprising to see the extreme care this tribe took with their small farms. Around every hill of corn there was a row of greasewood sticks stuck up on the west side to protect the growing plants from the winds. There were men and women at work in the fields, some hoeing and many more carrying water on their backs to irrigate the parched ground. We thought how some of our farming communities in the east could profit by such examples of industry. As a rule they depend on irrigating their fields once or twice a season, by hastily damming up an arroyo that has been charged by the melting snow or a cloudburst in the mountains.

As we approached their spring we frightened away their women and children who had gathered there to get their supply of water for the day. Most of them hastily picked up their jugs and a child and were off. Some of them picked up courage enough to return and ask for tobacco and matches. We tried to satisfy their demands. This was

Walpi, the first Moqui village west of Keams Canyon, and is an nearly everyone knows, situated on a high, long and very narrow solid rock that is only accessible at two points. On the east side of the mesa they had cut a trail out of the bluff, where they certainly must pull wagons up as we saw two or three in the Pueblo.

The village itself might be repulsive to a person with a very delicate sense of smell. This did not stop us however, as we had visited Zuni, and so we went right into the thickest of it without any misgivings. When civilized man goes into an Indian village it is the usual custom to go into all their huts or tents whether they are wanted or not. I often wonder if the red man gets the unpleasant habit of quietly and abruptly stalking into our dwellings or suddenly pressing his face against our window from us. As a matter of course we did not care to introduce a new custom for one that has been so long in vogue, so we went in everywhere. When we got in we tasted everything that we thought was meant to be tasted and handled everything we did not taste. Perhaps the Moquis had some things that we did not fully investigate. If this was so it was not our fault. I think that we astonished our stomachs with some of the things we thrust into them. We did not relish anything they had to eat. Their corn bread is a bluish black and as thin as wrapping paper. The color is given it by the corn. The sweet bread they make by chewing the meal before the dough is made. I knew there was no use of my trying to eat. My stomach practically declined it before it was offered.

The Moqui house seems to be orderly and clean and their storerooms where each family keeps a year's supply of corn always on hand, to be used in case of a siege or famine, were marvels of neatness. The corn was carefully arranged on their shelves. These Indians burn manure as all pueblos do, and it is dug out of their sheep pens where it has been packed for ages. This fuel with a few small sticks added makes a hot fire, with a good strong odor as accompaniment. The houses are stacked one on top of the other, just as they are at Zuni, running up to four or five stories. We also saw that our national bird was treated in the same disgraceful manner as at Zuni. They must have had twenty eagles that had never grown half a crop of feathers in small cages. None that we saw had a feather beyond the pinfeather stage. Jackson thought that it was strange that the army was not sent here to stop the disgraceful depredations on our National Emblem's plumage, and the use of it in their dances.

We did not think that modesty was a Moqui virtue. The women generally wore two blankets sewed together at the top and sides leaving holes for the arms and head. From their torn and dirty appearance we thought that these blankets were not removed until they wore off. The men generally wore their legs bare, and a dilapidated shirt completed their toilet. Children under eight, like the colt in "Mother Goose," were allowed to go naked, especially the boys. Some of them were adorned with a piece of an old shirt and it always seemed to be the back half. However, their clothes never took any undue advantage of them, as they seldom struck below the belt.

Marriage among the Moquis is a pleasing ceremony, and it is worth a brief description. The courtship begins when the maiden is twelve or thirteen. All the marriageable girls are known at a glance, as every Moqui maiden wears her hair in two knots, one on each side of her head. The courtship begins by the youth presenting the maid of his choice a beautiful white wool scarf. If this is accepted his attentions will be received with favor. He then pays her frequent visits, and when her consent is obtained a regular ceremony is performed, after which they are exhorted to be good and kind and faithful. This is done by the headman of their clan, and in the presence of their friends. The young couple then go to their home, which belongs to the woman, as do all their houses.

Should the marriage in the course of time turn out unhappily, the couple separate, as civilized people do at times, and the Moquis are divorced. The process is a very simple one. Should the husband, when he returns from his day's work in the field, find his old rifle and saddle and other personal effects thrown out of the house before the door, he at once understands that his presence is no longer desirable. In our tour through the town we saw several seeming love affairs. The young girl sat toying with her weaving, while her lover reclined near her. The whole scene was a perfect "Dolce far niente." Naturally, we went everywhere without ceremony, and sometimes, as in these cases, were not welcome.

II

We left this pueblo about noon. Our road lay almost due west to the village of Oraibi. This is the largest and the most interesting of the Moqui villages. These Indians had not been visited so much by strangers and we found that our advances were met with anything but

cordiality. As we approached the town the women were bringing up their water for the night, and one quite old squaw ran up the steep trail so fast with an immense *olla* of water on her back and a two year old baby on top of it that we could not overtake her on our ponies.

As we dismounted in a sort of a little plaza near the middle of town, an old man came out on the top of one of the biggest houses, and began a harangue that soon filled the little space. At first we thought that his remarks might be directed at us, and we expected to be ejected from the town. We had heard of the ugly temper of this band of Moquis, and thought that they were going to give us an example of it. It proved to be only a custom of theirs, for the old man was only calling out the details of work in the fields for the next day. We looked around here as much as we thought they cared to have us and then rode down the west side of the mesa to a little spring three miles from the village, where we were to make our camp. The trail took us through some of their peach orchards. A great many of their trees were almost entirely covered by great sand drifts. Many of them had only a few branches above the sand. It looked as if the fruit might have been dug with a hoe. It is wonderful what fine peaches these trees bear, and the Moqui dried fruit is highly prized wherever it is known. As we rode along we met a number of them coming in from their work, most of them carrying wood or water up to their houses for the night.

We arrived at camp at sunset, well pleased with our day's experience, and with thirty-three miles behind us. No sooner were we well fixed in our camp than we seemed to have the whole town around us, and all of them wanted something. It did not at all matter what. They generally asked for coffee, tobacco or matches, though they were satisfied with bacon rinds, or empty cans. We had to give up trying to appease their wants, and when they found that we had at last turned a deaf ear to all their demands, they left us.

It fell to my lot to attend to most of the culinary department, while Jackson helped Minus secure the camp for the night. After supper we baked a loaf of bread for the next day. I had learned the Indian method of baking a loaf in hot sand. It was necessary to use this method with our limited supply of utensils. It is done by digging a round hole the size of the loaf and putting hot coals in it. After the sand has become very hot, the dough is poured into it. It is then covered with a pan on which hot coals are heaped. An expert can

sometimes make very fair bread this way, but it always has the disadvantage of being just a little gritty, a failing which our bread had. It was also a little heavy, but it answered the purpose, and as we ate in the dark we could not see the dirt.

In the morning we arose very early and found ourselves on the road a little before six. We knew that we would have a long, hot and sandy ride. Our anticipations were realized. The trail was first along the Oraibi mountain, and then it struck off across the Snake and Dog Valley. Then up a long steep hill onto a high mesa. It was nearly one when we at last halted for lunch on the top. The sun was low in the west when we at last rode into Tuba City, a little Mormon settlement on the Moencipie. How lovely the bright green looked and what a cool refreshing rest the cottonwoods afforded. The ragged barefooted children gathered around us as we dismounted and unpacked. We made all the arrangements necessary to pursue our next day's journey. Not the least of these was shoeing the ponies. The crude Mormon blacksmiths had their hands full of their heels, as the ponies invariably presented both of their hind feet at once. Spike was entirely unmanageable and he had to go unshod.

Our evening repast at the Morman hotel was not very substantial. It consisted entirely of stewed gooseberries and soda biscuit. One of our neighbors at the table, whom we afterwards learned was a Mr. Ruggles, a traveling showman, told us that this had been his fare for three days. We learned that the town's supply of tea and coffee was exhausted. The Mormons, as I had experienced on previous occasions, generally lived during the fruit season, on bread and fruit alone.

After tea, Mr. Ruggles began with the assistance of his numerous family to clear away a space in the yard and to pitch a lot of apparatus that soon bore evidence that our evening was going to be a lively one and that the quiet and seclusion of Tuba City was to be rudely shaken by a frontier traveling circus. He had hardly made fast his bars and trapeze, when his audience began to arrive. Most of the younger Mormons had never seen a circus, or anything of the kind. What a field Mr. Ruggles found for his ancient jokes! It is unnecessary to say that Punch and Judy were uproariously received. Mr. Ruggles and his family, it seemed, had become stranded here on account of a freshet in the Colorado River. They were not "stacking up very well," as the genial Ruggles found occasion to remark several times during the enter-

tainment, and he concluded the evening performance with this well-worn joke, at the same time passing his hat to one of the brothers. It met with a liberal response considering the place. I hope that the whole family continued to "stack up" as well as they seemed to after the performance, as they were a jolly, happy frontier lot.

In the morning we provided our landlady with enough flour to bake our bread, and also coffee and bacon for breakfast, as gooseberries were hardly substantial enough for our day's journey. Mr. Ruggles seemed to enjoy the meal and said that it put him in great shape for his trip.

This little settlement is seldom visited by the outside world, and on account of this exclusiveness Mormonism evidently flourishes. For a small place we had never seen so many children. They were certainly "as thick as hasty pudding."

III

We left Tuba City very much refreshed, and would have been in high spirits if Sam's pony had not played out the day before and left him dependent upon the bounty of his numerous but distant relatives. This left us in a plight, as the Mormons would not go with us except at a most exorbitant price which we had refused to consider. We went back for Sam, after waiting for him where he had promised to join us with a new pony, but we could not find him. This left us entirely dependent upon our maps, our general knowledge of the country, and the information that we had extracted from the indifferent but shrewd Mormons. We had carefully noted and patched their information together, and we had quite a correct idea of the trail.

Finally, after one of the hottest and most disagreeable rides down the Moenkopi Wash, we reached the Little Colorado, where it runs through a deep and narrow canyon. It was at lunch time that day that Jackson and Spike had a lively interview that furnished a little amusement for the rest of the day. I had tied the little beast to a bush where he could browse, and Jackson went up to him to adjust his saddle when Spike lifted one of his hind feet and gave him a vicious kick; and, as Jackson turned to remonstrate, he bit him on the arm. At this kind return for services rendered Jackson became a little provoked, and remonstrated with Spike further, saying that since he could not return the bite he would include it in the kick, and when the big heavy government boot sank among Spike's ribs, the pony collapsed with a grunt.

After supper we all left camp to hunt the trail for the next day. This is where we felt the loss of Sam severely, for the rocks showed us nothing, though we knew there must be a trail. However, we persevered and by sundown we found a way out by a side canyon which we concluded would take us to the trail. After we had returned to our camp and were sitting talking, the canyon reverberated again and again with the crack of a rifle. At first we were startled and perplexed, as echo after echo took up the shot until it sounded like an army. It proved to be Minus who had left us and was perched above us on a shelving of rock, firing desperately into space. When we finally stopped his shooting, he explained that he was lost.

The next day at five o'clock we set out and found our supposed trail of the night before. We soon found it was leading us away from our destination, and so we had to leave it, striking out over the flinty rough malpais. It was after nine when we struck the proper trail. In the morning, before setting out, we had carefully filled our canteens and even took some water in our scarred up veteran of a coffee pot, stuffing the lid and spout with grass. We carried the pot in turns. The Mormons had told us of the terrible ride that we would have without water, and Minus was thoroughly impressed, so much so that though we had all agreed not to drink any water till noon, after he had carried the precious pot we found it empty. Thus the necessity of our being bothered with it anymore no longer existed.

At noon we sat down on the hot ground and ate a cheerless meal, or tried to eat it. I foolishly declined to eat. Minus had become so anxious about water that while we rested he rode around looking for it, in feverish anxiety. His canteen was entirely empty and he said he "would croak sure" if he did not have a drink. Indeed, it had been fearfully hot and the trail led us up and down the meanest pitches – the side canyons of the Little Colorado, and striking a high ridge on the south of that stream. Minus was very anxious to know how long a man could live without water in the hot sun, and again he rode off to look for it. This was very discouraging, for he had been without it only since he had emptied his canteen about an hour before. Spike, too, had been getting tenderfooted, and his back had become very bad from an old sore, so that I had to abandon him, completely played out. I started off on foot while Minus was still out on his wild-goose chase after water. In separating from the rest of the party our whole trouble began,

as Minus did not return for quite a while and Jackson could not leave until he came. I, therefore, traveled several miles on foot and in the wrong direction. When the rest of the party finally overtook me, I had led them seven miles off the road. I was completely exhausted.

We sat down in the shade of some bushes to talk over the situation, finally concluding to abandon most of our packs and start back and look for the right trail. Jackson thought that he had seen it as he rode along, so after satisfying Minus that there was no water in the neighborhood, we took the trail that Jackson had seen, and which proved to be the one we wanted. It was now growing late. We had been in the saddle or walking since early in the morning, and we were all tired. Minus was excited and feverish for water. We experienced the shock of seeing a strong and hearty man changed into a cowardly beast. It made Jackson and me nervous, as we could not tell what rash act Minus would commit after we had gone to bed.

As we rode along the Buckskin Mountains (we thought they had been well named, they were so tough), we saw some doves fly out of a little canyon. As doves in the evening generally congregate near water, I told Minus that there might be a spring in that canyon and that we would wait till he rode up to where the doves were. That was the last we saw of Minus. We waited for him to return. We fired our guns, and built a fire, and fired off our guns. We securely tied our mules to the bushes and then moistened our lips with a little water, and went to bed. During the night Minus must have ridden near our camp, as our mules were both gone in the morning and the bushes that they were fastened to were pulled up. It would be impossible to picture our dismay when we got up at daylight and found that we had been left on foot in the heart of an unfrequented desert and twenty-five miles from the nearest known water. We were even then weak and exhausted, and there was not half a gill of water in our canteens.

We gathered up our things and cached everything that we had in the brush; we packed a little coffee, sugar, bacon and a few biscuits in a small cotton sack. We also took our arms and a small flask of whiskey. Our canteens had to be carried though only a few drops of water remained in one of them. Before leaving we tried to eat a little of the biscuit soaked in whiskey. This Jackson found refreshing, but I could not even swallow it. We had decided to return to the Little Colorado, for we knew the way and felt sure that Minus had deserted us and gone

there for water, and perhaps he would return to us. The whiskey made me so sick that I felt I was starting under the greatest disadvantage, yet at first I was the stronger and took the lead with the canteens, Jackson following with the provisions.

The first five miles, made before the sun got above the mountains, were without much suffering. We rested quite often but we traveled well, under the circumstances. After that, every step that we took was only with the greatest exertion, knowing that if we gave it up it meant death. The sun was fearfully hot and there was not a cloud in the sky. The glare on the rocks parched us. When we were going down a little canyon Jackson sat down under a cedar tree and fell asleep. I lay down beside him and we must have slept for some time. I finally aroused myself with difficulty, and had a great deal of trouble getting Jackson up.

We pressed forward again, throwing ourselves under every bush where we could push our heads into the shade. Our lips and tongues began to swell and turn black. We could hardly struggle from bush to bush. We would fall asleep every halt and dream of lovely valley with rushing brooks and cool retreats. The awakening was terrible. Jackson then had to force me to get up and go on. It seemed to us scarcely worthwhile to make the effort, so comfortable it was to lie there. At half past nine I had grown very sick at the stomach, and I grew so weak from retching that I could scarcely reach the shade of a small pinon where we decided to rest for an hour, and to divide the little remaining water. We sank beneath its shade and soon fell asleep.

I felt very much relieved at the time for starting as Jackson had rubbed my face, neck and chest with the whiskey. We then doled out the water. Each half nearly filled the small screw top of the canteen. Jackson most generously offered his allowance to me. Of course I could not listen to this, especially as we had agreed on starting in the morning, that we would share everything alike, and that we would stick together as long as either could walk. The survivor was then to go as far as possible for help. We again agreed to these resolutions because both of us now considered that our case was desperate. I think that we both thought that if we got out of this that we would improve our past – I believe that we admitted this to each other. Before we again took the trail we took off and threw away all our surplus clothing. Jackson mournfully parted with his Winchester. He had carried it for several weary miles because it had been given to him by a brother officer. I had long

since dropped by carbine, as it was only a borrowed one of Uncle Sam's. It did not cause me any pang or heaviness of heart.

When we were at last ready to go on, I said to him that just then things looked a little grim. We were so loath to leave that we embraced the opportunity that this feeble joke afforded to linger a while longer in the shade and smile. This was no easy task with lips and tongues swollen like ours. We at last got under way and were doing our best to reach the Little Colorado. We had climbed out of one canyon and were going down into another when we saw a horseman coming. We gave a frantic shout and plunged down the hill to meet him. It was Sam, who smiled grimly when he saw our condition. We sank into the shade of a rock and "water" was the only word that we felt we could utter.

He gave us one of his canteens which was soon emptied. Jackson then made himself a toddy and felt much better. As I was not able to join him, he tried to make me a little coffee. He did not make a great success of this as he did not let the water boil at all. He was afraid that he "would burn it," he said, and "it was too precious to run any risk." It was refreshing and I did not complain. Indeed, we were both in a happy frame of mind and we rejoiced that we had only the experience and nothing worse. In the meantime Sam started off to hunt for water. He soon returned saying that he thought from the tracks down the canyon that there might be water lower down. This proved to be the case. He found in the shade of some large boulders a beautiful rock tank of rain water. We at once went there and camped, and slept and rested all day.

Sam went out and found our ponies and pack saddles and the precious Winchester and our clothes that we had thrown away. He could find nothing of Minus or the missing mules. That evening we made Sam go out and sleep on the trail so that he could stop the mules in case they should try to follow it to Tuba City during the night. He had hardly reached the trail before he saw that someone has passed on it.

He ran at the top of his speed and overtook the missing Minus, who was riding one mule and leading the other. The man was absolutely crazy. He was a ghastly looking sight when Sam brought him into camp. All this was due to fright, as he had found a little water where we had seen the doves, and when he was found he had a little in a bottle. He had been eating mud and his face and lips were covered with it. H did not return to us when he found the water because, he

said, there was only a small seep and not enough for all. He put some in the bottle in his saddle bags and gathered some of the moist clay. During the night he became frightened about being lost and tried to find us. When he rode near us he stampeded our mules and they pulled away and followed him. After a while, he said, he struck a trail that his mules followed and he thought that he was going home. He fired off his gun to warn us and that frightened off my mules, but Jackson's would not leave him. At sunrise he saw that he had not been riding toward Tuba City, but in the opposite direction. He then struck back and let the mule have his way. After it grew warm he became too dizzy to ride and lay down. He did not remember anything after that until he was found. We cared for him and put him to bed.

IV

The next morning, as Minus seemed to have recovered, we decided to resume our journey and since Minus did not care to venture further, we sent him into Tuba City after the mule. We hid all the stuff that we had packed on the mules, and taking Sam, we rode bareback to our cache and found everything just as we had left it. Soon we were fixed out practically as good as ever, and, as Sam had been here before, we felt confident of success.

At one o'clock we overtook an old Supai hunter and a boy. The old fellow was going just where we were and it made us feel that good fortune had at last overtaken us. His name was Burro and he was a famous hunter in the tribe. Their diminutive ponies were loaded down with blankets and other things that he had traded his skins for with the Navajos. He had an antelope's head dried and made into a mask, and a dirty shirt that was covered with flour paste. He used these in stalking his game. When rigged up, he made a very presentable antelope.

The trail became very good and we soon got into the pines. The shade and cool breezes of the mountains were delightful. We found along the trail several articles that belonged to Minus that he had evidently thrown away during his frantic night ride. Burro saw some antelope tracks and promised to kill one in the morning. He kept his word. He tried to explain to us that we were approaching a house where, he said, there was a bad white man named Hancey. After a long time I finally concluded that he must mean the man who lived on the edge of the Grand Canyon, an old acquaintance of mine named John

Hance. He was a freight conductor at Fort Verde and a good whole-souled fellow when sober, but a terror when drinking. I knew him well and felt that our welcome would be hearty.

Before we came in sight of the cabin we were greeted with the sound of loud and violent swearing. It was evidently Hance in a rage at someone. When we drew near his cabin we saw him rush out with a rifle and take aim at a small squad of Supai Indians who were watering their horses at his spring, and he was cursing them for muddying the water. For a moment we expected to see bloodshed, as Hance was known to have an ungovernable temper; but, the Supais began to make some apologies, and Hance, accepting them with poor grace, told them to go off. When he saw us he gave us a more cordial welcome than I had anticipated. It seemed a wonder that a cabin so small could hold a heart so large. His outburst had subsided and he began at once to get us something to eat. We left him thus occupied and went over to a bluff near his cabin to take our first look at the Grand Canyon. We sat on the hill, awed by the wonders of nature now spread out before us. The magnificence of this view cannot be described. It was a long while before we could realize the grandeur of it. There is no such other view on our continent.

This point in no distant day will be world-famed, and this poor cabin will give way to a fine hotel. From this little bluff one gets the most perfect view of the canyon. Precipices mount on precipices for nearly seven thousand feet. Needle-like pinnacles rise for thousands of feet below. Their height and size are appreciated only by counting the rows of tall firs and pines that strive in vain to gain their tops. The Colorado winding through a narrow gorge ten miles away seemed but a thread. Across the canyon from extreme summit to summit is seventeen miles.

In the morning Mr. Hance gave us some lunch to be cooked at the spring halfway down the trail, and we began the steep descent. The climb is a hard one, and though our past experience had not fitted us for it, we found that it was well worth the effort. We found the spring to be a lovely resting place, and we enjoyed a good cup of coffee which Jackson did not make. The day was a most enjoyable one and we will never forget it. The climb back out of the canyon though very steep was not as hard as we had expected. It is natural after the sightseer has gone to the trouble and expense of getting to the Grand Canyon to

wish to make the descent to the river. We thought that the view from the top was much finer than anything below and that the only thing the visitor got by going down the hills was a just appreciation of their size by actual contact. I liked the view from Hance's and especially at sunset or sunrise. The grand red cliffs and peaks clothed in the deep green of the pines were wonderfully sublime in these lights.

Sam did not care to go into the Canyon with us and seemed to pity us for riding so far to see this "big hole." He went off to try to kill a deer and Burro went after his antelope. Both were successful so we had a good supper of venison, and Sam and Burro and the boy sat up till after midnight transferring the meat from the antelope's ribs to their own. We spent the evening washing our clothes and went to bed while our garments dried since, owing to our mishaps, our wardrobe had become limited to what we had on our backs.

V

About six o'clock in the morning we left Hance's ranch and reached Lee's Tanks before noon. We rested there until two and then started for the Little Colorado, leaving Sam to follow with the pack-saddles and the worn-out ponies. At five o'clock we were at the crossing of the river, and here we expected to camp for the night. After we had eaten our supper, we began to worry about Minus and the lost mule and made up our minds to ride on to Tuba City and try to overtake them. We hastily saddled up and started off. Just as it was growing dark we reached an old Indian dam in the Moenkopi Wash. We tried to water our animals there but we could not get them near it. We tasted the water and found it to be very salty.

We had just concluded to leave when Jackson tried to lead his mule across the wash just above the dam. When he was about halfway over Mollie began to sink in the quicksand. She was soon in up to her ears. We threw off our coats and commenced to struggle with the helpless animal to get her out of her plight. We worked like dogs digging and scratching in a rat hole for two hours, and every pore in our body perspired. We were covered with sand and alkali water and the mule seemed to be in deeper than ever. We saw that we could do nothing alone. We were in despair when Jackson suggested that we tie the mule's head to the pony's tail and pull her out, and this we did. We also passed a rope under the mule's tail and by a lucky pull we got her

out. We sat down on the sand utterly exhausted but immensely relieved.

We thought we had better press on and get to Tuba City before Minus could leave it in the morning. We feared that if he got a head start on us he would rush on home and tell some horrible story and startle the whole post. Then we felt sure that he would sell the mule to the Mormons if he found it. Part of the way we had to walk and lead our tired animals. It was after midnight when we arrived at the settlement. We rode into a barnyard and fed our beasts and went to bed ourselves in the haystack. We had a very refreshing sleep and slept late. The sun was beating down on our faces when we awoke. We ordered our breakfast and while we were waiting, we went off to find Minus and our lost mule. We found the former with little trouble and he said he had neither seen nor heard of the missing mule.

After breakfast we hunted the town and the surrounding country thoroughly but we could not hear a thing of the mule. We ordered the Mormon women to cook us food for our return journey as we had lost our small bag of provisions in the struggle in the quicksand the night before and we did not miss the things at all in the night, of course. I had some coffee in my pockets and a small piece of bacon in our saddlebags. This was enough to last us to Keam's Canyon. We started Minus off ahead and put the eatables in his saddlebags. We intended to go off the road a little way ourselves and make more inquiries for the missing mule. Minus in some way or other gave us the slip and went back to the Mormon town. When we found that out, we knew that he had found the mule and sold him to these Mormons. However, we thought all the time that he was on the trail ahead of us, and we felt that we were confirmed in this from the signs some Oraibi Indians made when we asked them about him.

They must have misunderstood us or we them, or probably each misunderstood the other. When we reached the Oraibi Spring we were thunderstruck not to find him there. We were naturally very weary and disgusted when we went into that camp. We freely anathematized Minus for this last desertion and we felt that we deserved some of it ourselves for not being careful, and that made us even more sore. The little coffee in the envelope in my pocket and the small piece of bacon had to do for our supper. I was utterly disgusted, and tired and went to bed and left Jackson to get supper. He burned the first pan of bacon so

we could not eat it and that left only two small pieces. While he left these to fry by themselves, the plate turned over and the rest of it went into the fire. I told Jackson that I did not care for any supper anyway, and that he was the grossest man that I ever saw. So I turned over and tried to go to sleep.

After we had both got to bed, both our animals got loose and we had to chase them around in our stocking feet in the dark, cutting ourselves on the sharp stones and bushes. We felt that we were in a bad way again. At last we caught them both. We had something more to be thankful for and could breathe again. It may perhaps seem strange that we could not fasten our stock securely when so much depended on them. There were no trees in that country and we could only find bunch grass or greasewood to tie up to, and it was easy for the mules to pull this up if they wished to do so. They generally did.

We breakfasted on a few dried peaches that we had bought from the Indians and we hired a couple of old men to cut us some hay for our stock by giving them a little tobacco and a few matches. After this frugal meal it did not take us long to ride the distance to Oraibi. Here we found a squaw who had a few eggs and a little coffee, some very dirty dishes and a small supply of water. She soon ground us some coarse corn meal on a flat metate. We borrowed enough coarse salt, which she also ground on the metate, and we soon had a most palatable breakfast of soft boiled eggs, corn flap-jacks and coffee. We felt for once like blessing everything and everybody except Minus.

The Oraibis, like all the Moquis, are very careful of their water. They think that after they have carried it so far that it is too precious to use for washing purposes. They made a great fuss over some that we threw away after washing our hands and the dishes. All that we used in that way they insisted on saving to use again; as we were going away and did not expect to return soon, we did not object. One cannot be too particular if he is to enjoy a meal among any of the Puebloes or indeed any Indians.

After a pleasant though warm ride of thirty-five miles we reached Keam's Canyon. We were glad to get back and we felt perfectly satisfied that we knew how not to go to the Grand Canyon. We also felt proud of the ride that we had made, and it will be long remembered by the natives as well as ourselves as the longest and severest on record. Our gaunt faces and weary looks fully sustained our story and dispelled

all doubts in our hearers, if any existed. They did not express their doubts to us, at least. We looked and felt desperate. We felt that we could endorse everything that Sancho Panza ever said about sleep. For the first two or three days after we returned we found that it was delicious. We could always find plenty of excuses to rest and sleep.

The way for the average civilized man to reach the Grand Canyon and to enjoy it, is to go to Flagstaff, Arizona, a small station on the Atlantic and Pacific Railroad. Here he can hire a good conveyance and after a pleasant ride around the San Francisco Mountains and through the pines, arrive at Hance's Ranch. This is about fifty-five miles from the railroad and the road is fine. This view and Hance's trail are both finer than those at Peach Springs where the Canyon is more open and easier of access. The latter may satisfy the casual tourist and bridal party, but the true lover of the grand and picturesque in nature should go to Hance's even if he has to travel our trail. Here the sportsman can find deer, antelope and mountain sheep and splendid hunters to show the game, or even kill it for him.

THE CACTUS GARDEN

Notes, News, Queries, Comments
& Editorial Remarks

Gentlemen:

Please let me stroll in your Cactus Garden for a moment to let your readers know about the *Arizona Collection for Western and Borderlands Research.*

Since 1918 the University of Arizona Library has been actively collecting materials relating to Arizona and the West. Today this collection is housed in a special room where it is presided over by librarians under the direction of Phyllis Ball. In addition to containing one of the largest book collections of Arizoniana in the world, it is also the repository for the raw data of history: diaries, photographs, ledgers, journals, business records of all kinds (including mercantile, cattle, mining, etc.), notebooks, scrapbooks, correspondence, minutes of meetings, and those ephemera on which students in our graduate program in history can base factual and interpretive written histories.

Our program at the University of Arizona is threefold: preservation, interpretation, and presentation. We can do all three if first we can locate the kinds of records mentioned above. This is where we need the active support of readers of *ARIZONA and the WEST.*

Anyone having material pertaining to western history who would like to see it permanently preserved in this constructive way has only to drop a card to: The Field Historian, Library 307, University of Arizona, Tucson. Anyone further

interested can write the same address to be placed on the free mailing list of *Arizona History News*, a little newsletter published occasionally to keep Arizonans posted on news of activity in the field of history in Arizona.

BERNARD L. FONTANA
Field Historian
The University of Arizona

A NOTE
ON THE PERIODICAL LITERATURE OF THE WEST

The recent publication of *A Classified Bibliography of the Periodical Literature of the Trans-Mississippi West, 1811–1957* (Indiana University Press, 1961) raises several questions which the editors of this journal have asked the compiler of the bibliography to answer in print. Why, in the first instance, did the compiler elect to compile? How, statistics-wise, does the present bibliography differ from its progenitor, *The Trans-Mississippi West: A Guide to Its Periodical Literature* (Indiana University, 1942)? What does the present work reveal about the probable mosiac of contemporary writings on the history of the West? In short, how does this bibliography aid the serious student of the West in recognizing new trends or new treatments of old subjects? Or, indeed, old treatments of new subjects?

A search into the subconscious and misty past has produced a possible answer to the first of these queries. The compiler admits to having taken seriously a charge once made by Professor Charles H. Haskins to his class in Historical Criticism and Bibliography at Harvard. Said Professor Haskins: "It is the duty of historians to perform a certain amount of spadework in the historical vineyard." I have herewith discharged an obligation to my professional colleagues but not, alas, to my wife who endured a critical mass of about ten thousand note-cards strewn about in a manner that had meaning but was incompatible with the maintenance of an orderly home.

In any event, the intent and purpose of this work were of the best – namely, to provide students, teachers, and researchers interested in the trans-Mississippi West with a classified guide to the enormous amount of periodical literature that has appeared in periodicals during the past century and a half. The oldest publication represented is *Niles' Weekly Register*, first published in 1811. Then the *North American Review* with several of its 244 volumes containing articles on the West. The bulk of the journals represented are of later vintage. There were sixty different periodicals included in the 1942 edition; seventy are represented in the present work. Among the newcomers (at least new to this compilation) are *Ethnohistory, The Historian, Huntington Library Quarterly,* and *Montana Magazine of History*. *Arizona and the West* was, unfortunately, too new to meet the 1957 deadline.

Much of the so-called "fugitive" literature still needs its bibliographer, however, for no short-lived journal is represented here with the exception of few random or scattered articles that by chance came to the compiler's attention. And omitted, too, have been the published transactions of professional societies, brief biographical notes, book reviews, queries and answers, and necrology. But what is left for inclusion is considerable: articles, bibliographical material, journals and diaries, letters, newspaper material, official documents, and personal reminiscences published in the professional journals, state historical society journals, and such significant magazines as *Harper's, Atlantic Monthly,* and *Overland Monthly.* The output of periodical literature on the trans-Mississippi West has accelerated enormously since 1942. The earlier edition listed 3,501 items; the present work (including all references in the earlier edition, plus those that have been issued during the intervening two decades) contains 9,244 items.

But quantity is not the sole distinction to be made between earlier and more recent periodical publications, although quantity is the essential grist for a compiler's mill. One reviewer of the earlier edition bemoaned the fact that twenty-two pages of bibliography were devoted to Iowa whereas his own state rated but ten. The compiler was, and still is, as helpless in rectifying this gross inequality as he was and is also in complying with a request from another reviewer for more items on Lewis and Clark. The items, unfortunately, are not available for making distribution judicious and equitable.

Several new major topics or classifications have emerged in the 1961 edition – due mainly to new or intensified historical productivity on such subjects as agriculture, immigrant groups, Indian-military affairs, labor, the Negro in the West, reclamation and conservation, and national parks and monuments. Moreover, recent investigations on subjects listed as major topics in the earlier guide have clearly led to new and broadening facets which are designated in the present work as sub-topics; these bear such varied labels as migratory workers, industry (including logging and lumbering and petroleum), folklore, World War II, foreign elements other than Orientals, Los Angeles and southern California, education, and the automotive and air age. Also, it should be noted, the number of articles listed under older major topics and sub-topics has increased tremendously; Texas is a conspicuous example. In all, the present edition lists 69 major topics as compared with 56 in the earlier one; the sub-topics, however, number 611 and 270 respectively.

What is strikingly interesting and significant is that the 9,244 items dealing with this array of major topics and sub-topics were produced by roughly one-half the number of authors. In other words, some 4,600 authors have, over the past century and a half, produced on the average two items apiece. In the 1942 edition the most prolific author was T. C. Elliott, with 49 items to his credit, but two decades later he was edged out by Carolyn T. Foreman with a record 51 published items. Grant Foreman trailed his wife with 30 items; and in the 30-to-39 category belong such industrious and distinguished historians as LeRoy R. Hafen (38), F. W. Howay (30), W. Turrentine Jackson (30), J. Orin Oliphant (32), Mildred Thorne (32), Henry R. Wagner (30), and Muriel H. Wright (32).

Other distinguished names are represented in a meager fashion, quantitatively; among these are Ralph P. Bieber (5), Frederic L. Paxson (5), Frederick Jackson Turner (2), Samuel Eliot Morison (5), Walter Prescott Webb (8); and from among journalists, Richard Neuberger (9) and William Allen White (2). Samuel Flagg Bemis wrote one article far removed from his field of diplomatic history – "Captain John Mullan and the Engineers' Frontier"; the date, 1923.

It has been noted that the last two decades have witnessed not only a proliferation in historical writing on the West, but also new avenues of research. The latter is apparent in the many new and expanded topics that appear in the Table of Contents of this bibliography, and also in the contents of the articles listed. Slowly the old mosaic of western history is crumbling. It was astounding to discover that of the 3,501 items listed in the 1942 *Guide* only a few articles reflected an interest in and concern about the post-Turnerian West. Historians, like the book collectors, looked back; they concentrated on the formative periods in the West. The covered-wagon migrations to Oregon held a greater fascination for them than did the reclamation in the Inland Empire. California's yellow gold was more to the researcher's liking than California's "black gold." The range cattle industry took precedence over the grain milling industry. Populism was preferred to Progressivism. The post-1890 West still awaits its Herodotus.

The new frontiers beckon to the researcher, but the present day historian of the American West remains cautious and conservative. For the most part he still insists upon at least a half-century of hindsight. Even though the present bibliography reveals an awakening interest in twentieth century events, there is little apparent danger that our western periodicals are about to be classed as *avant garde* literature.

Oscar Osburn Winther
Indiana University

REVIEWS OF RECENT BOOKS

Review Editor:

JOHN PORTER BLOOM

APACHE, NAVAJO AND SPANIARD. By Jack D. Forbes. Norman: University of Oklahoma Press, 1960. 304 pp. $5.95.

reviewed by

A. P. NASATIR

Professor Nasatir, of San Diego State College, has published extensively in the fields of Spanish and French colonial history in North America. His best-known work is *Before Lewis and Clark* (1952), in two volumes.

Professor Jack D. Forbes has written a much-needed and long-overdue study of Spanish-Indian relations in New Mexico and Texas between 1535 and 1698. It is to be hoped that he will continue his work and round out the entire Spanish era to 1821. Here he focuses on the northern edge of the Spanish frontier and confines himself to the Southern Athapascan Indians or, as they are more commonly termed, the Apaches and Navahos. Deftly exhibiting sound training in both anthropology and history, Forbes has constructed an ethnohistory of the region. He presents what he considers the Spanish side based on Spanish documents; but his sympathies are so clearly pro-Indian that, at least for once, the Indian has received a fair break.

In Forbes' treatment, slave trading and maltreatment of the Indians appear as the fundamental causes of their undying hatred of the Spaniards. Essential in developing his thesis is the author's belief that the Southern Athapascans had a healthy commercial relationship with the Pueblo Indians which was destroyed

by the coming of the Spanish. The disruption of this trade, the seizure of Indian property, and the removal of the Indian from the land make the theme of Forbes' study. This is most cleverly evident in his extensive discussion of seventeenth-century New Mexico, where time and time again the author describes Spanish exploitation of the Pueblo Indians, slave-raiding expeditions, and Indian uprisings. The Apaches, he states, were forced into the role of raiders.

In an introductory chapter identifying the Southern Athapascans, Forbes traces briefly the expansion of the Spanish Empire in North America. The earliest Spaniards are seen as wealth-hungry bandits, not as conquerors who came to establish a permanent kingdom. Coronado is portrayed dissipating the strength of his enterprise in idle marches and cruel, high-handed policies that alienated the Indians. Combining to defeat the Spaniards were these factors: stubborn defense by the independent-loving Pueblo Indians, revolt by the oppressed Sonorans, and vast distances that prevented active responses to frontier situations. Forbes argues that the fierce fighting of the Pueblo Indians demonstrates that the minds of the natives were steeled against European intrusion.

Turning his attention to the search for wealth, Forbes examines Spanish-Indian experiences in mining areas. In centering his narrative on Francisco de Ibarra in Nueva Vizcaya, he states: "Wherever the miners went bloodshed soon followed." The "naked thrust of Spanish imperialism" kept Nueva Vizcaya in almost continual warfare from 1560 to 1600. The Spaniards continually probed northward in search of Indians to work in the mines. The second half of the sixteenth century, says Forbes, was also noteworthy because of the appearance of the mounted Indian as a barrier to Spanish imperialism. Thus the early years of Ibarra's governorship disclose the Spaniards not only as missionaries gathering souls but also as slave-gatherers sowing the seeds of hate in the Athapascan borderlands.

In chapters entitled "Death and Destruction" and "Athapascans at War," Forbes discusses the establishment of permanent control in New Mexico. The author shows no love for Juan de Oñate, despite his contribution to the establishment of permanent Spanish settlement in the Rio Grande Valley. He emphasizes the failure of the Spaniards to make good profits from the labor of the Indians. The Pueblo Indians often fled to the mountains, abandoning their towns; and the priests complained that the cruelty of the soldiers alienated the Indians to such an extent that they rejected Catholicism.

Forbes argues that the years 1606–1609, in which the Athapascans acquired and mastered the horse, set the stage for later Navaho-Spanish relations. In treating the seventeenth century – a central part of his story – Forbes utilizes the printed works of Scholes and others, gathering the threads of Indian-Spanish relations in each New Mexican governorship. He carefully documents the well-known conflicts between Franciscan and secular authorities over control of Pueblo Indian labor. Forbes also discusses the effects of Spanish Indian policies in Nueva Vizcaya, Sinaloa and Sonora, particularly the impact of Spanish slave raiding upon the policies in New Mexico.

The Indian point of view is most clearly depicted in the Pueblo Revolt of 1680, which Forbes rightly designates as being significant by calling it "The

Great Southwest Rebellion." Somewhat doubtful, however, is his assertion that New Mexico was never actually a colony prior to 1680, but rather exclusively a military outpost designed to protect the Franciscan missionaries. Enslavement of Athapascans, famine, a ban on trading with other tribes and a generally harsh Spanish policy, Forbes points out, kept the idea of revolt alive among the Pueblo Indians. Feelings remained so strong that, despite their efforts to reconquer New Mexico, the Spaniards were ousted completely for more than a decade. The Great Southwest Rebellion, especially the Pueblo portion, emerges as a complex political, economic, and religious phenomena. Interrelated were the desires of the Pueblo Indians to free themselves from Spanish control and to renew their peaceful trading relations with the neighboring Apaches, and the Apache drive to stop Spanish invasions of their land and to restore old religious practices as a means of preserving their identity.

Forbes' treatment of the rebellion and reconquest, which occupies more than a third of the volume, is the most valuable portion of the study. The re-establishment of Spanish authority in the Rio Grande Valley was not completed under Vargas, but early in the regime of his successor. Among the distinct ramifications of the rebellion was the postponement of the planned occupation of Baja California. Unquestionably, according to Forbes, the Athapascans played a vital role in the obstruction of Spanish northward expansion. They provided a refuge for Pueblo Indians and helped to stimulate rebellion on numerous occasions. Athapascan wars, he concludes, largely were responsible for the weakness of the Spaniards in North Mexico, on the New Mexico-Texas frontier, and even in Alta California.

Surveying the sources upon which Professor Forbes has based his study, the reviewer finds heavy reliance on the standard printed works of Scholes, Hammond, Hackett, and Reeve. Unmentioned, however, are significant treatments such as those of Bailey and J. M. Espinosa on Vargas and the reconquest of New Mexico. Spanish, Mexican and New Mexican archives provided Forbes with additional valuable material. Setting out to provide Southwestern archaeologists, anthropologists, and ethnohistorians with a historical guide, Professor Forbes has contributed precisely this.

THE LIVES OF ELLIS P. BEAN. By Bennett Lay. Austin: University of Texas Press, 1960. 227 pp. $4.50.

reviewed by

MAX L. MOORHEAD

Professor Moorhead, chairman of the Department of History at the University of Oklahoma, is a specialist on the Southwest and Mexico's northern borderlands.

It is always a pleasure to welcome the efforts of a non-professional historian who employs the meticulous care normally expected of the professional. The author of this worthwhile contribution is a Texas attorney who gathered his

material for twenty-seven years and attacked his subject with both a critical mind and an understanding heart. The result is fascinating and reliable.

Lay's biography of Ellis P. Bean is based largely on the latter's almost incredible "Memoir" as first edited and published by Henderson K. Yoakum in his *History of Texas* (2 vols., New York, 1855–56). Large portions are quoted from this source, but since the memoir itself does not date events and the adventures related smack of an overworked imagination, the author has supplied copious information and further documentation from appropriate sources in Southwestern archives and libraries. These additions include several letters to and from Bean, particularly after the memoir ends in 1816. The author has corrected the sequence of some of the events related by Bean, questioned a few of his improbable assertions, and explained the inconsistency in the rendition of Bean's given names. Until he was 43 years old, in 1826, he signed it Ellis P., Ellis Peter, and Elias Pedro; thereafter, he signed it Peter Ellis, Peter E., and Pedro Elias.

For the few who have been unfortunate enough to have missed all references to the remarkable adventures of this almost legendary figure, a brief sketch of Bean's career, without its intriguing detail, will at least place him in perspective. As a teen-ager Bean took a flatboat down the Tennessee, Ohio, and Mississippi rivers to Natchez. There he joined Philip Nolan in his last filibustering expedition into Spanish Texas, in 1800–1801. Captured by a Spanish patrol, he was a prisoner for the next ten years, successively at Nacogdoches, San Antonio, San Luís Potosí, Chihuahua, Mexico City, and Acapulco. Escaping in 1811, he joined the insurgents striking for Mexican independence and served under José María Morelos in the capture of Chilpancingo and Acapulco. Shortly afterwards he was sent by these patriots on a mission to Louisiana, where he fell in with the pirate Jean Lafitte, and served under General Jackson in the celebrated battle of New Orleans. On his return to Mexico he married a señorita at Jalapa, was captured by Spanish loyalists, but escaped in 1816 to the Neutral Ground. Here ends his memoir but not his fascinating career. After an unsuccessful filibustering attempt with Bernardo de Gutiérrez he returned to his homestead in Tennessee. There he married an American girl who like himself shortly became a bigamist. After 1826 Bean was alternately and sometimes simultaneously an Indian agent of the Mexican government, a planter and citizen of the Texas Republic, and a man without a country. He spent the last three years of his life, 1843–46, with his Mexican wife at Jalapa.

If one must be critical of this fine piece of scholarship, attention should be called to a very few misspellings (beyond Bean's own) of Mexican names, to the unhandy segregation of notes and documentation into the last eighty-four pages, to the absence of a formal bibliography, to the failure to cite W. P. Yoakum's edition of Bean's "Memoir" published at Austin in 1930, and to an unimaginative selection of illustrations (five of the ten depict the city or fortress of Acapulco). On the other hand, it should be affirmed that the maps are useful, the index is adequate, and the text itself is very well written.

TULAROSA: Last of the Frontier West. By C. L. Sonnichsen. New York: The Devin-Adair Company, 1960. 336 pp. $6.00.

reviewed by

LYNN I. PERRIGO

Professor Perrigo, chairman of the Department of History and Social Science in New Mexico Highland University, is the author of *Our Spanish Southwest* (1960).

Tularosa is the biography of a broad valley, beautiful in its desolation, in the "tough country" of southern New Mexico. As C. L. Sonnichsen says, "Sensible men, cautious men, stayed away from such a place." Nevertheless, men came – first the Indians; then the Spaniards; more recently the cattlemen, some of whom became ruthless empire builders; and finally the scientists of the space age. The author tells the story of each with the gusto of a pioneer, the skill of a craftsman, and the care of a historian.

Although the meticulous professional historian would hesitate to adorn his work with imaginary conversations, as Sonnichsen does at times, admittedly that embellishment contributes color and readability. Otherwise Sonnichsen has substantiated his work throughout by reference to numerous sources, the evidence from which he has sifted and weighed with painstaking care during years of thorough research.

In the early chapters, where numerous pioneers are mentioned, the reader has difficulty in keeping them sorted out and begins to wonder when he will pick up the thread of the story. Presently, from those glimpses of the early days, one gathers an appreciation of the environment and of the code of the cattlemen:

> Courage was the great virtue – no man ran from a fight or quit before he was licked. Loyalty came next – a man stood by his friends, right or wrong, win or lose. Then came steadfastness – staying by the job till it was done . . . .

Soon the biography of the valley becomes also the vivid tale of big men, big murders, big mysteries and big events. It is something of a revelation, as well as a tribute to the environment, to find so many persons of national eminence who put down roots in the region – Albert Fall, Edward L. Doheny, Charles Siringo, Eugene Manlove Rhodes, and Dr. Wernher Von Braun. Ever haunting the valley, as these giants come and go, is the unsolved mystery of the murder of Albert Fountain and his son.

Finally, the heroic achievements and violent deeds of the past are dwarfed by the great transformation that came with the conversion of the Tularosa country into guided missile testing ranges. Then the author concludes:

> . . . there may some day be a space port in what used to be W. W. Cox's pasture – only a few miles from Chalk Hill and the Wildy Well and Pat Garrett's ranch in Bear Canyon, where so much happened just day before yesterday. When that day comes, the Tularosa country, where the Old West made a last stand, will still be frontier, the frontier that borders on the unknown lands beyond the stars.

THE GILA TRAIL: The Texas Argonauts and the California Gold Rush. By Benjamin Butler Harris. Edited and annotated by Richard H. Dillon. Norman: University of Oklahoma Press, 1960. 175 pp. $4.00.

reviewed by

DALE L. MORGAN

The reviewer is Editor for the Bancroft Library of the University of California. His two most recent books concern aspects of the California Gold Rush.

Richard H. Dillon of the Sutro Library is one of our more free-and-easy editors, and in Benjamin Butler Harris he has come together with a congenial soul, full of fun and frolic as well as information, and a man it is a joy to bend an ear upon. The Virginia-born Harris traveled from eastern Texas to California by the southern trail in 1849, made for the southern mines immediately on arrival, and as a miner and lawyer remained in California until the onset of the Civil War. He then enlisted in the Virginia cavalry and served three years in the Confederate army. After the war he organized a nonsectarian college in Tennessee and taught in a Nashville high school, but in 1870 returned to the Golden State and spent the rest of his life at San Bernardino as a rancher and lawyer. Seven years before his death, which occurred in 1897, he wrote the memoirs now published, the original manuscript of which is in the Henry E. Huntington Library.

Despite the subtitle given this book, Mr. Dillon has not inquired seriously into Texas participation in the California Gold Rush – a study I commend to the attention of some energetic scholar. Mr. Dillon provides a few notes on other Texas parties; but he is mainly concerned with the fortunes of the company with which Harris traveled, led by a prominent Arkansan named Isaac H. Duval. The Gila route to the gold regions has had comparatively little attention from historians, one reason being the scarcity of source documents to detail the experiences of those who traveled it. Consequently any new find, whether contemporary journal or detailed reminiscences like those of Harris, is bound to be welcomed as a signal contribution to Western history.

The Gila Trail, so-called, was less a single route than a congeries of routes – for at least one of which incidentally, no journal has yet been found. The common feature was their convergence, sooner or later, upon the valley of the Gila River en route to a crossing of the Colorado near present Yuma. Among these trails, the one traveled by the Duval company was nearly central, not leaving the Rio Grande so high up as some, and not penetrating so far south into Mexico as others. Crossing the Rio Grande at El Paso, Harris and his companions proceeded to the Gila by way of Casas Grandes, Corralitos, Janos, Agua Prieta, Santa Cruz, Tubac and Tucson. After crossing the Colorado they made their way to Los Angeles via Warner's Ranch, and then took the interior route over Tejon Pass, reaching the mines on a date Harris fixes as September 29, 1849.

About two-thirds of the book is devoted to the overland journey, the remainder to experiences in the mines. In both portions of the book, Harris' lively appreciation of the grotesqueries of human nature — dignities and indignities jumbled together in white men, red men, black men, and men of variously mixed complexions — is conveyed often in sardonic prose; and Harris saw himself as a comic figure too, an outlook less common among argonauts than might be supposed. The narrative is somewhat weak on exact dates, and has some of the other failings common to reminiscences. But it is richly anecdotal, as a diary written on the trail usually is not, and has the benefit of perspective on many of the men and events concerned. Mr. Dillon has buttressed the narrative with enough notes, a dozen illustrations, and a simple map of the route taken by Harris to reach the gold fields. The book is published as the thirty-first volume in the American Exploration and Travel Series of the University of Oklahoma Press.

END OF TRACK. By James H. Kyner, as told to Hawthorne Daniel. With an Introduction by James C. Olson. Lincoln: University of Nebraska Press, 1960. 280 pp. $1.60.

reviewed by

ROBERT W. JOHANNSEN

The reviewer, formerly of the University of Kansas, is now Associate Professor of History at the University of Illinois.

End of Track is the personal story of James H. Kyner, Civil War soldier, Nebraska state politician and railroad contractor in the Trans-Mississippi West. Originally published in 1937, Kyner's account is now reprinted by the University of Nebraska Press in the attractive "Bison Book" paperback series. The book is fascinating reading, for Kyner lived an unusually full life in the years allotted to him. Born in Ohio in 1846, he enlisted in the Union Army at the age of fifteen and fought the next year at Shiloh, where he lost a leg. Following the war he felt the tug of the West and the decade of the 1870s saw him in Nebraska. In 1880, Kyner was elected to the Nebraska state legislature.

Service in the Nebraska legislature opened up a new world to Kyner for, as a result of his support of railroad interests in the state capital, he obtained his first railroad construction contract. One contract led to others in different parts of the Trans-Mississippi West — a branch line in Nebraska, a section of the Oregon Short Line, and work on lines in Colorado and Iowa. His story is that of the little-noticed construction engineer, and herein lies the book's contribution. Kyner treats the problems of railroad construction with understandable enthusiasm. To him, the railroad held the key to national development and he, in his own small but essential way, shared in that development.

Kyner was the product of an individualistic age. Undiscouraged by his wartime injury, he became a part of all that we associate with the "Wild West." He possessed the energy, resourcefulness and tenacity without which the West could not have been won. Unlike many of his comrades, he outlived the frontier, and in his latter years found himself in a world that became increasingly difficult for him to understand. He viewed with distrust the efforts of the government "to create an easier life for the people." No people, he concluded, "ever prospered by being protected from life. It is the struggle that makes them strong. It is the struggle, too, that is the reward in life."

LAST OF THE VAQUEROS. By Arnold R. Rojas. Fresno: Academy Library Guild, 1960. 165 pp. $3.75.

reviewed by

GLENN S. DUMKE

The reviewer, formerly Professor of History and Dean of the Faculty at Occidental College, is now President of San Francisco State College, California.

This is a book of lore, but it is not restricted to folklore. Much of it is horse lore, some of it cattle lore, and part of it – the most significant part – the lore of the *vaquero,* the California cowboy. Popularization of the "horse opera" has given most Americans a stereotyped view of the cowboy. He is usually seen on the Great Plains in a strictly Yankee environment. Persons of Spanish or Indian origin, if they appear at all, commonly wear black hats and are disposed of in the last act. In this book, however, the author, himself of Latin antecedents, describes another great cattle range – the southern San Joaquin Valley of California. Here he found, in his own words, "great ranches, horses to ride, and matchless story-tellers turning back in retrospect the pages of their adventurous lives." It was not a strictly Yankee culture. Mexicans and Indians did much of the work, and were highly respected as individuals.

Rojas' story of the California vaquero is based upon his own experiences as a cowboy, and is therefore largely a book of reminiscences. As such, it is not well organized, but strictly logical organization is not a requirement for a book of reminiscences. Rojas educated himself, and did a good job of it. He starts out with a snatch of historical background, not always completely accurate, and then settles down to his main job, which is that of observing, in loving fashion, the way of life of the California vaquero – his vocabulary, his pride in his work, his horse-training methods and his tools. "I am a descendant," says the author, "of the people who established the cattle industry in North America and brought the fine art of forging and inlaying Spanish bits and spurs into the West."

The book is a contribution to western folklore of no small value, because it describes a cattle range less well known than that on the western edge of the Great Plains. Moreover, it does so in very human terms. The book is illustrated and has an appended list of prominent vaqueros of the southern San Joaquin.

INDIANS, INFANTS AND INFANTRY: Andrew and Elizabeth Burt on the Frontier. By Merrill J. Mattes. Denver: Old West Publishing Company, 1960. 304 pp. $5.95.

reviewed by

EDGAR I. STEWART

The reviewer has distinguished himself with many publications in the field of Western military history, notably with *Custer's Luck* (1955). He holds the Ph.D. from the University of California and teaches at Eastern Washington State College.

This little volume is devoted to the adventures of Captain (brevet Major) Andrew Burt, an officer in the unglamorous infantry, and his wife, Elizabeth, on the western frontier during the years between the Civil War and 1898. This was a period when the might and majesty of the United States was devoted largely to an attempt to force upon the untutored red man the benefits of a civilization that he did not understand, and to force him to adopt a way of life that he did not want.

Andrew Burt had a long and illustrious career. He was with Professor Marsh on his famous fossil-hunting expedition, and with the Jenney party in 1875 when it confirmed Custer's report of the year before as to the existence of gold in the Black Hills. Captain Burt was with General Crook at the battle of the Rosebud, and on the famous – or infamous – horsemeat march from the Powder River to the Black Hills took a prominent part in the battle of Slim Buttes. He was with General Stanley on the Yellowstone expedition of 1873, the semi-official *Army and Navy Journal* spelling his name Burk. During those years Andrew Burt went almost everywhere and rubbed shoulders with most of the famous military men of his day.

This volume is based on a manuscript written by Elizabeth Burt, *An Army Wife's Forty Years in the Service,* which in turn was taken from diaries kept by Mrs. Burt, and from letters she wrote at the time of the events described. Both diaries and letters have disappeared without trace. Mr. Mattes is quick to point out that Elizabeth Burt was not writing for historians, but for her children and grandchildren, and she related the things of interest to her and which she believed would be of interest to them. But the things which are interesting to the keeper of a journal are not always those things in which posterity is most interested. And there are topics upon which Mrs. Burt's silence is almost maddening to the professional historian of the American West.

One of the main features of the book – one which is stressed on the dust jacket – is a section of two chapters devoted to affairs at Fort C. F. Smith just prior to its abandonment. This remote army post, located on the Big Horn River just below the mouth of the canyon, largely has been neglected in accounts of the Indian wars and has become "a lost island of history." Regarding life at this outpost, Mrs. Burt gives a detailed picture, pointing out the causes and nature of some of the hardships. Supplementing this account is a great deal of research by

Mr. Mattes; as a result we have as authentic an account of affairs at this northern fort on the Bozeman Road as we probably shall ever have. But certain haunting doubts cannot be resolved entirely. Mrs. Burt does not discuss the famous Hayfield Fight of which she certainly must have known, and her failure to do so causes one to question whether or not the omission was deliberate. Did she edit much out of the narrative? Were certain things omitted from a respect for the memory of former associates whose reputations might be damaged? These are questions that perplex the historian, but doubtless they can be answered by the discovery of the lost diaries and letters.

Although there are a few trifling errors (for instance Lieutenant James H. Bradley did not visit the site of Fort C. F. Smith in April, 1876), this volume has solid merit as a picture of what one might call "the domestic life of the army." The book is illustrated abundantly, in fact the illustrations alone are worth the price of the volume. The chief defect of the book is that Mr. Mattes sticks too closely to Elizabeth Burt's narrative, which often lacks literary quality. Her re-iteration of going into a new station where they were unacquainted, or where they met old friends, often becomes tiresome. Mr. Mattes proves that he can write fine and vigorous prose, and it is regrettable that he did not give us more of it. As it is, this is a good book; that it is not a great one is due largely to the modesty of Mr. Mattes, who could have written more and depended less on the narrative.

WESTERN STORY: The Recollections of Charley O'Kieffe, 1884–1898. With an Introduction by A. B. Guthrie, Jr. Lincoln: University of Nebraska Press, 1960. 224 pp. $4.50.

reviewed by

GILBERT C. FITE

The reviewer is Research Professor of History in the University of Oklahoma, and a leading specialist in agricultural history.

In the summer of 1884 Mary O'Kieffe and her son Grant filed on homesteads in Sheridan County, Nebraska. Mrs. O'Kieffe and four of her children arrived in the new and unsettled land southeast of Rushville the following November. At that time, Charley was five years old. During the next few years the O'Kieffe family grubbed out a living from the inhospitable soil and climate of northwestern Nebraska.

Although Charley was only a young lad during the 1880s and 1890s, his memory of pioneer life is remarkably clear. The passage of time has not romanticized his view of the frontier, and he tells about day-to-day life on the homestead and in the little town of Rushville with humor and understanding. The best chapters are entitled "The New Land" and "The New Life." Here O'Kieffe describes the houses, the food, the people, and other aspects of daily existence

in a pioneer community. There is little glamor in these recollections, but a great deal of human interest and authentic history. This reviewer has had an opportunity to examine many of the diaries and letters written by Nebraska pioneers, and, in comparison, the O'Kieffe recollections ring true.

Western Story is volume II in The Pioneer Heritage Series published by the University of Nebraska Press. This press is to be congratulated on undertaking such a series. It is refreshing in this day when the real west is being twisted out of all recognition by novelists and television script writers to have new and authentic accounts of pioneer western life made available. For an evening's reading about genuine frontier living on the Great Plains, *Western Story* will be hard to beat.

FORTUNE'S MERRY WHEEL: The Lottery in America. By John Samuel Ezell. Cambridge: Harvard University Press, 1960. 331 pp. $6.75.

reviewed by

THOMAS D. CLARK

Professor Clark, of the University of Kentucky, has been president of both the Mississippi Valley Association and the Southern Historical Association. His books have ranged widely over the fields of the frontier and social history.

Historically the American people have always been gamblers. This can be shown in many ways, but there were two periods when the lottery flourished: the colonial period and the era immediately following the Civil War. In the age when internal improvements first became a major public issue, promoters of lotteries and raffles believed they had the answer to financing projects, not only for internal improvements but also for churches, schools, libraries, and other public institutions.

Running parallel with the efforts to promote lotteries were the crusades to abolish them. From 1830 to 1860 and in the years following the Civil War an abolition drive was underway. This crusade was based on moral grounds and was an effort to correct many insidious practices which had come into existence. Contrary to the arguments of proponents of lotteries – then or in 1961 – that this was a painless way of raising funds, the great raffles tended to cause poor people to spend their money in hopes of gaining great riches, and they were a great corrupting influence in the field of politics.

No better example of the politically corrupting influence of lotteries can be found than in the history of Louisiana. Behind a facade of respectability provided by the popular ex-Confederate officers, P. G. T. Beauregard and Jubal A. Early, Louisiana's great gambling juggernaut ironed out the rich and the poor alike. Its promoters had no scruples against corrupting politician and citizen alike. They drained money away from people all over the nation. One of the most interesting aspects of the Louisiana lottery was the fact that the United States

Government had such great difficulty bringing it under control. The lottery revealed one of the fundamental weaknesses of the federal system. This is being demonstrated in the present effort to curb interstate gambling.

The title of this book seems to indicate a free-wheeling text with a generous sprinkling of con men, promoters, and poor downtrodden hod-carriers winning fabulous mortunes. On the contrary, Professor Ezell presents the lottery in a clear, unromantic manner, and he has done a most careful piece of research. Americans generally would do well to read this book; social historians have a dependable study before them. This is a good contribution in a long-neglected phase of our history.

FORTY YEARS AMONG THE INDIANS: A True Yet Thrilling Narrative of the Author's Experiences among the Natives. By Daniel W. Jones. With a Foreword by A. R. Mortensen. Los Angeles: Westernlore Press, 1960. 378 pp. $8.50.

reviewed by

LELAND H. CREER

The reviewer is Professor of History in the University of Utah.

This rare book, long out of print, relates in unusually vivid and gripping style, the author's unique experiences among the Indians of Western America. Jones first came to Utah in 1850 with a party from Santa Fe, New Mexico, travelling over the Old Spanish Trail to northern California and driving before them a band of some 8,000 sheep. He was so impressed with the Mormons of Utah Territory that he decided to remain among them. Soon thereafter, in January 1851, he was baptized a member of the Mormon Church and served his fellow religionists for more than sixty years as peace-maker, interpreter, and missionary to the neighboring warring tribes. His travels took him over the vast inhospitable plains of Arizona and New Mexico and into the equally unattractive regions of Old Mexico where he attempted to found Church colonies. Because of his deep-rooted understanding and sympathetic attitude toward his Indian friends, Jones soon acquired the reputation as the most capable emissary of the Mormon Church among them.

Forty Years Among the Indians is indispensable to students of the American Southwest. It is one of the few first-hand accounts of the interesting Spanish-Mexican slave trade which was conducted over the Old Spanish Trail through this area. Written in vivid and entertaining manner, and portraying graphically the story of the Indians and their strange but dramatic relations with their white neighbors, the monograph reveals the character of both Mormon and Mexican group life and sheds light on the broader aspects of one of the most dynamic frontiers of American History.

POLITICS AND GRASS: The Administration of Grazing on the Public Domain. By Phillip O. Foss. Seattle: University of Washington Press, 1960. 236 pp. $4.50.

reviewed by

ANDREW WALLACE

Mr. Wallace is a doctoral candidate in history at the University of Arizona.

The range cattle industry in the western United States is more dependent on the natural productivity of the soil than any other branch of agriculture. Yet the uncontrolled use and abuse of western grasslands has kept the cattle industry in a perennial state of crisis since its extraordinary expansion in the two decades following the Civil War.

In a general way the nature of the crisis can be seen evolving in three rather distinct periods. First, there was the era of initial expansion and exploitation throughout the Great Plains and Far West that featured open range operations and a dramatic cycle of boom and bust. Then, as the frontier closed and the open range was no longer feasible, cattlemen – many of them simply to survive – struggled to reorganize and consolidate. After 1905, and having fenced the pasture land in their control, they sought to make the most profitable use of the public domain still open to them. But during the second period, between 1905 and 1925, homesteading and cutthroat competition denuded much of the best lands, commenced large-scale erosion, and turned the public against them.

By 1930, it was not only evident that the western ranges had been harmed seriously and permanently, but also that Congress, after seventy years of bungling and salutary neglect, had failed to produce a realistic conservation policy for what remained. Drought, debt, erosion, dust and public antipathy ushered in the last phase of the cattle industry's continuing crisis. Finally, in 1934, Congressman Edward T. Taylor of Colorado used the impetus of the New Deal to obtain passage of the Taylor Grazing Act, and the federal government began the administration of grazing on the public domain.

It is this last, now subsiding phase of the cattlemen's crisis with which Mr. Foss deals, although a large portion of his book, especially the first two chapters, treats with background. He presents a solid, objective account of how and why the Taylor Act was passed, and he outlines the organization and operation of the U. S. Grazing Service within the Interior Department. Then he launches into a detailed case study of how the Act functioned (or more exactly, malfunctioned) in one typical grazing district of southeastern Oregon. There is one chapter devoted to a review of the grazing fee controversy and a summary chapter at the book's end.

Mr. Foss is a member of the Department of Government at San Francisco State College, and his *Politics and Grass* was given an award by the Western Political Science Association in 1957. It is primarily a study of a current problem from the political scientist's point of view, and not a history of the public lands of the West. As an analysis of a specific problem in American Government –

the interplay of Congressional policy making and executive administration – it is a first-class book, and doubtless it fully deserved the prize. Its documentation is thorough and scholarly, and where Mr. Foss is concerned with historical matters he has solid backing of good secondary sources.

One criticism is that a single case study would not necessarily prove the prevalence of mismanagement by grazing district advisory boards. But his interweaving the study into the large picture of administration, and presenting much background, makes his arguments convincing. Mr. Foss' major interest is not in delineating exactly an isolated historical situation but rather in demonstrating an administrative, decision making process.

According to Mr. Foss' prologue the formulation of government policy is not exclusively the domain of the national legislature. Presumably we may expect federal executive agencies, *e.g.* the Grazing Service, to extend and recast public policy in the normal course of their operations by the decisions they make. "This study," to quote Mr. Foss, "is an extended case history of the development of public policy for the administration of grazing on the public lands of the United States." And such development, he explains, is as much the result of participation by special interests as it is the work of bureaucracy. If this is true, and the public policy being developed for grazing is similar to the picture presented in southeastern Oregon, then one must conclude with Mr. Foss that the Taylor Grazing Act has been a limited success. Now, a century after the first longhorns were trailed out of Texas, the cattle industry of America is still in a serious crisis.

GRANDPA WAS A POLYGAMIST: A Candid Remembrance. By Paul Bailey. Los Angeles: Westernlore Press, 1960. 181 pp. $5.50.

reviewed by

A. RUSSELL MORTENSEN

Dr. Mortensen, a native of Salt Lake City, was Director of the Utah State Historical Society for eleven years and Editor of the *Utah Historical Quarterly*. In September of this year he became Director of the University of Utah Press.

Polygamy as practiced by the Mormons in the last half of the nineteenth century has had many chroniclers, defenders, and critics. To many, both within the church and out, it has seemed the main thread of Mormon theology and history. Polygamy has been studied, weighed, measured, and explained by sociologists, psychologists, and historians since its teaching and practice first became public knowledge more than a hundred years ago. Moral or immoral, legal or illegal, these and many other facets of the "principle" enlivened the press and furnished the halls of Congress with much material for debate during the decades of the sixties, seventies, and eighties. In spite of this publicity and the writings and discussions in the years that followed, polygamy is still a little understood feature of Mormon theology and life.

Here is an entertaining and illuminating little book written about this religious principle as practiced during its closing years. Bailey describes how polygamy worked in a somewhat typical Mormon household. There is no preaching, criticism, or defense of the institution, either explicit or implied, only a narrative of life in that kind of household as seen by a young boy with no knowledge of any other. Incidental are pieces of Mormon history, folklore, and theology he recalled from the age of eight and learned at Sunday School and from his grandfather.

The Mormon reader may be of two minds: some may accept the story as typical of a young boy's life in a small Mormon town; others may find it in part flippant and not wholly acceptable. The reader may privately smile at similar memories it evokes, but may not accept it as a representation of life in a Mormon household. While there are many customs and allusions that may seem odd and strange to the "gentile" reader, there is a universality about the story that should appeal to all readers with any interest in American folkways. This reviewer found it delightful reading, full of humor and understanding.

HORSE WRANGLER: Sixty Years in the Saddle in Wyoming and Montana. By Floyd C. Bard. As told to Agnes Wright Spring. Norman: University of Oklahoma Press, 1960. 296 pp. $4.00.

reviewed by

LEROY R. HAFEN

Dr. Hafen, for many years the Director of the State Historical Society of Colorado, now teaches at Brigham Young University. Together with his wife, Ann W. Hafen, he has made many contributions to Western history as editor and author.

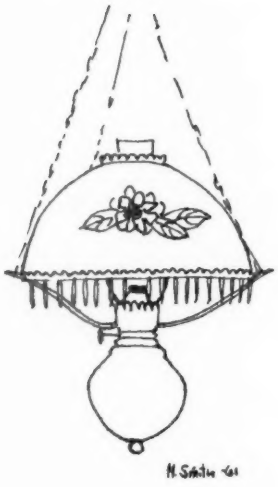
At age 78, in the year 1957, Floyd Bard began to write his recollections. With a memory remarkably keen, he detailed the experiences of his young years in Wyoming. As a twelve-year-old he tended the cavvy of a roundup outfit, and soon after "night hawked" for a survey party. He saw much of the famous Johnson County War, the fight between "White Caps" and nesters, and gives a report sympathetic to the latter.

The life in Sheridan and at the home ranch he describes with a young boy's sharp perceptions. His outstanding employment as a young man was as an amateur and then as professional bronco buster – standard price five dollars per head. He seems to remember the characteristics of every bronc he rode, and he broke literally hundreds. He took a short term at Wyoming Collegiate Institute at Big Horn, run by Professor Austin and one assistant. But at Christmas vacation he was back at the ranch, catching and breaking wild horses. He rode cattle trains to Chicago and Kansas City, caught wild horses, ranched on his own, barbered, roped and branded cattle, played polo, bought horses for the

Boer War (at $40 apiece) and for World War I (prices $125 to $165), managed big spreads as a foreman, and lost two companions who froze on a hunting trip in the Big Horn Mountains.

Many picturesque expressions and methods are reported. "Now every little way some of the bunch [of wild horses] would throw up their tails. They were all in, couldn't go any farther" (p. 174). "We saw a lot of good stud fights.... They would meet each other with their mouths open and squealing. Sometimes they would come together standing on their hind legs. Those stud fights were fast and furious" (p. 194). Ducks nested in Alberta: "A young Mallard is almost grown before it has wing feathers enough to start flying. . . . Out into these pot holes I would ride my horse and kill some of the young Mallards with my quirt" (p. 191).

The story is brought only to the end of World War I; most of the space is given to the first seventeen years of the author's life. Mrs. Spring has been wise in her editorial work. She has avoided altering Bard's picturesque language and has let him tell the story in his own way. Thus we have a good picture of early Wyoming life, important alike for facts, attitudes, and expressions.



A ROUNDUP OF WESTERN READING

by

THE OLD BOOKAROOS

B. W. Allred

J. C. Dykes

F. G. Renner

Kansas, a Pictorial History (Kansas State Historical Society, $8.95) is a big, handsome book prepared by Nyle H. Miller, Edgar Langsdorf and Robert W. Richmond, all of the Society's staff. There is a minimum of text and a maximum of visual history. A special feature of the book is a series of double-page maps in color that show the gradual formation of the counties. The vast file of photographs in the archives of the Society provided most of the illustrations. However, many individuals and organizations supplemented the Society file to provide as complete a pictorial record as possible. The photographs are uniformly good and some are excellent. In addition, appropriate drawings and paintings by such well-known Western artists as Frederic Remington (far a short time a Kansas sheep rancher) and Charles Schreyvogel are used to illustrate particular events. In time, this pictorial history stretches from Coronado, the first white man known to have visited Kansas, to the present. If any important historical happening is omitted, this reviewer, a once-upon-a-time Ness County cowboy, has failed to spot it.

Lost Oases along the Carrizo (Westernlore, $12.50) is a beautiful book and an informative one, too. It was written by E. I. Edwards, author of the fine bibliography, *Desert Voices* (1958). The Carrizo Corridor was used by many and written about by quite a few before it was abandoned and almost forgotten. Pedro Fages, Spanish soldier and explorer, discovered the Corridor and wrote the

first description of the palm tree oasis in it back in 1782. General Kearny and his Dragoons used it in 1846, and Colonel Cooke and the Mormon Battalion in 1847. Many gold seekers using the southern route (the Gila Trail) also traveled the Carrizo Corridor. It was a stop on the Butterfield Stage route. The history of the Corridor is entertaining and worthwhile, but for this collector the Colorado Desert bibliography that follows the text is even more interesting. The bibliography occupies almost fifty pages and is no mere listing of titles. Mr. Edwards, a collector of note, has commented on the contents of each of the books. Westernlore Press has done its usual excellent manufacturing job and has included a good index and some fine photographs by the old desert hand, Harold O. Weight, whose foreword gets the book off to a running start.

The Desert Was Home (Westernlore, $6.75) by Elizabeth W. Crozer Campbell is about the adventures and tribulations of California desert homesteaders. Today this area has become a health spa where thousands of sun-worshippers escape frosty northern winters. However, many like the Campbells make their homes there all year. In 1924, in desperation, the Campbells camped in the high, dry, Morongo desert, hoping that healing for Bill's war injuries might be found in the sun and clear air of the mountain slopes. A year later they filed on their homestead at Twentynine Palms and began the toil of home-building and well-digging. They found time to help hard-pressed neighbors and soon knew the habits of desert animals, learned the country trails, and prospected the homes of ancient desert tribes. An accredited archaeologist and gifted writer, Mrs. Campbell has written such notable technical books as *The Pinto Basin Site, Archaeological Survey of the Twentynine Palms Region* and *The Archaeology of Pleistocene Lake Mohave*. Her current book tells of the Campbells' life in the desert, and the result is a warm and human story that is delightful reading. The text is illustrated with numerous interesting desert scenes.

The San Juan River heads in the snowy crests of the San Juan Mountains in southwestern Colorado. It was age-old Ute country before the Spaniards came. Whites moved in when gold was discovered in 1860, and cattle and sheep ranches developed in the spectacular mountains and valleys. *Golden Treasures of the San Juan* (Sage, $4.50) by John B. Marshall and Temple H. Cornelius is full of stories about Indians, Mexicans, miners and others that lived in this remote region. Many of the tales are based on the personal experiences of Cornelius, an old-timer in the country. A few miners struck it rich, others made a living digging hard rock in the mines, and some supplemented their wages by snitching high-grade ore and cashing it in on the sly. Some were caught and suffered harsh penalties in miner's courts and at the hands of vigilance committees. There are tales of fabulous buried treasure still sought by fortune hunters. Several very good modern and early-day photos illustrate this excellent regional history.